GA-K8NXP-SLI

AMD Socket 939 Processor Motherboard

User's Manual

Rev. 1003

12ME-K8NXPSLI-1003

Declaration of Conformity

We, Manufacturer/Importer
(full address)

G.B.T. Technology Trading GMbH
Ausschlager Weg 41, 1F 20537 Hamburg, Germany

declare that the product
(description of the apparatus, system, installation to which it refers)

Motherboard
GA-K8NXP-SLI
is in conformity with
(reference to the specification under which conformity is declared)
in accordance with 89/336 EEC-EMC Directive

☐ **EN 55011**	Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) high frequency equipment	☒ **EN 61000-3-2**	Disturbances in supply systems caused
		☒ **EN 61000-3-3**	Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations"
☐ **EN 55013**	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	☒ **EN 55024**	Information Technology equipment-Immunity characteristics-Limits and methods of measurement
☐ **EN 55014-1**	Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus	☐ **EN 50082-1**	Generic immunity standard Part 1: Residual, commercial and light industry
		☐ **EN 50082-2**	Generic immunity standard Part 2: Industrial environment
☐ **EN 55015**	Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries	☐ **EN 55014-2**	Immunity requirements for household appliances tools and similar apparatus
☐ **EN 55020**	Immunity from radio interference of broadcast receivers and associated equipment	☐ **EN 50091- 2**	EMC requirements for uninterruptible power systems (UPS)
☒ **EN 55022**	Limits and methods of measurement of radio disturbance characteristics of information technology equipment		
☐ **DIN VDE 0855** ☐ **part 10** ☐ **part 12**	Cabled distribution systems; Equipment for receiving and/or distribution from sound and television signals		

☒ **CE marking** CE (EC conformity marking)

The manufacturer also declares the conformity of above mentioned product with the actual required safety standards in accordance with LVD 73/23 EEC

☐ **EN 60065**	Safety requirements for mains operated electronic and related apparatus for household and similar general use	☐ **EN 60950**	Safety for information technology equipment including electrical business equipment
☐ **EN 60335**	Safety of household and similar electrical appliances	☐ **EN 50091-1**	General and Safety requirements for uninterruptible power systems (UPS)

Manufacturer/Importer

(Stamp)

Date : Dec. 14, 2004

Signature : *Timmy Huang*

Name : Timmy Huang

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

Responsible Party Name: G.B.T. INC. (U.S.A.)

Address: 17358 Railroad Street
City of Industry, CA 91748

Phone/Fax No: (818) 854-9338/ (818) 854-9339

hereby declares that the product

Product Name: Motherboard

Model Number: GA-K8NXP-SLI

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109 (a),Class B Digital Device

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accept any inference received, including that may cause undesired operation.

Representative Person's Name: ERIC LU

Signature: *Eric Lu*

Date: Dec. 14, 2004

Copyright

© 2005 GIGA-BYTE TECHNOLOGY CO., LTD. All rights reserved.
The trademarks mentioned in the manual are legally registered to their respective companies.

Notice

The written content provided with this product is the property of Gigabyte.
No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without Gigabyte's prior written permission. Specifications and features are subject to change without prior notice.

Product Manual Classification

In order to assist in the use of this product, Gigabyte has categorized the user manual in the following:

- For quick installation, please refer to the "Hardware Installation Guide" included with the product.
- For detailed product information and specifications, please carefully read the "Product User Manual".
- For detailed information related to Gigabyte's unique features, please go to the "Technology Guide" section on Gigabyte's website to read or download the information you need.

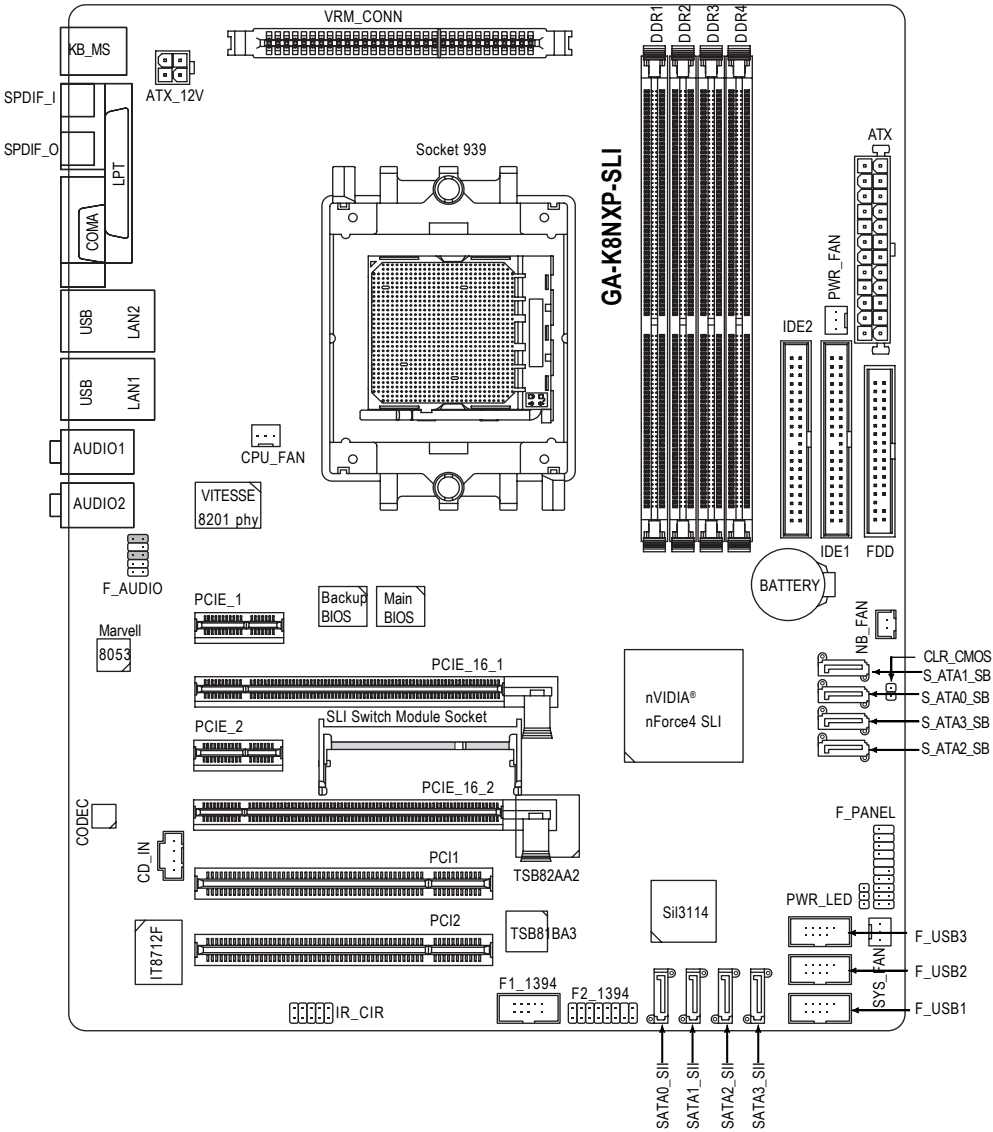
For more product details, please click onto Gigabyte's website at www.gigabyte.com.tw

Table of Contents

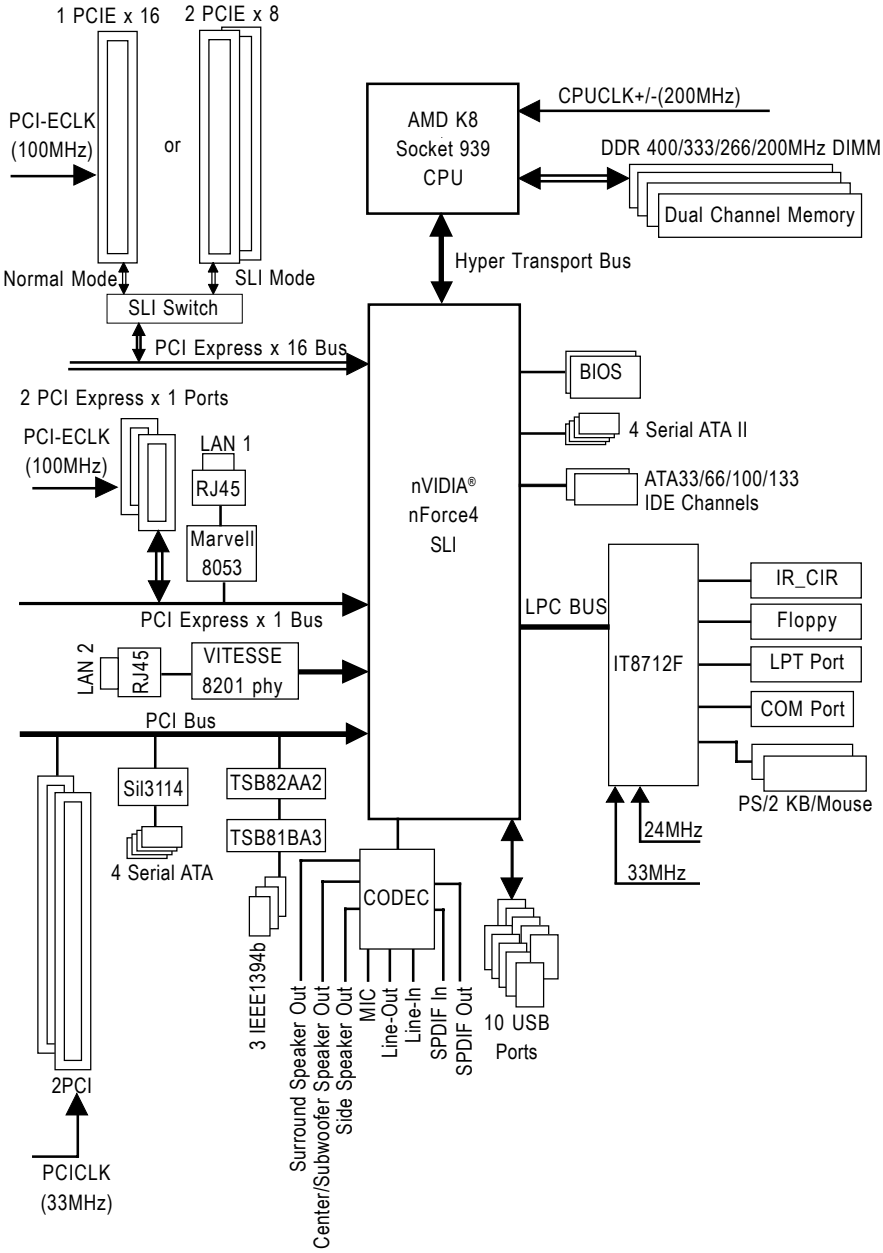
GA-K8NXP-SLI Motherboard Layout 6
Block Diagram 7
Chapter 1 Hardware Installation 9
1-1 Considerations Prior to Installation 9
1-2 Feature Summary 10
1-3 Installation of the CPU and Fan Heat Sink 12
1-3-1 Installation of the CPU 12
1-3-2 Installation of the Fan Heat Sink 13
1-4 Installation of Memory 14
1-5 Installation of Expansion Cards 16
1-6 Installation of K8DPS (Dual Power System) 17
1-7 Setup of SLI (Scalable Link Interface) Configuration 18
1-8 I/O Back Panel Introduction 21
1-9 Connectors Introduction 22
Chapter 2 BIOS Setup 33
The Main Menu (For example: BIOS Ver. : F2g) 34
2-1 Standard CMOS Features 36
2-2 Advanced BIOS Features 38
2-3 Integrated Peripherals 40
2-4 Power Management Setup 44
2-5 PnP/PCI Configurations 46
2-6 PC Health Status 47
2-7 MB Intelligent Tweaker(M.I.T.) 48
2-8 Load Optimized Defaults 49
2-9 Set Supervisor/User Password 49
2-10 Save & Exit Setup 50
2-11 Exit Without Saving 50
Chapter 3 Drivers Installation 51
3-1 Install Chipset Drivers 51
3-2 Software Application 52
3-3 Software Information 52

3-4 Hardware Information 53
3-5 Contact Us 53
3-6 Install IEEE 1394 Driver (Only for Windows XP SP2) 54
Chapter 4 Appendix 57
4-1 Unique Software Utilities 57
4-1-1 EasyTune 5 Introduction 57
4-1-2 Xpress Recovery Introduction 58
4-1-3 Flash BIOS Method Introduction 61
4-1-4 Serial ATA BIOS Setting Utility Introduction 72
4-1-5 2- / 4- / 6- / 8- Channel Audio Function Introduction 78
4-2 Troubleshooting 84

GA-K8NXP-SLI Motherboard Layout



Block Diagram



Chapter 1 Hardware Installation

1-1 Considerations Prior to Installation

Preparing Your Computer

The motherboard contains numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Thus, prior to installation, please follow the instructions below:

1. Please turn off the computer and unplug its power cord.
2. When handling the motherboard, avoid touching any metal leads or connectors.
3. It is best to wear an electrostatic discharge (ESD) cuff when handling electronic components (CPU, RAM).
4. Prior to installing the electronic components, please have these items on top of an antistatic pad or within a electrostatic shielding container.
5. Please verify that the power supply is switched off before unplugging the power supply connector from the motherboard.

Installation Notices

1. Prior to installation, please do not remove the stickers on the motherboard. These stickers are required for warranty validation.
2. Prior to the installation of the motherboard or any hardware, please first carefully read the information in the provided manual.
3. Before using the product, please verify that all cables and power connectors are connected.
4. To prevent damage to the motherboard, please do not allow screws to come in contact with the motherboard circuit or its components.
5. Please make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
6. Please do not place the computer system on an uneven surface.
7. Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user.
8. If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

Instances of Non-Warranty

1. Damage due to natural disaster, accident or human cause.
2. Damage as a result of violating the conditions recommended in the user manual.
3. Damage due to improper installation.
4. Damage due to use of uncertified components.
5. Damage due to use exceeding the permitted parameters.
6. Product determined to be an unofficial Gigabyte product.

1-2 Feature Summary

CPU	◆ Socket 939 for AMD Athlon™ 64 / 64FX processor (K8) ◆ 2000MT/s system bus ◆ Supports core frequencies in excess of 3000+ and faster
Chipset	◆ nVIDIA® nForce4 SLI Chipset
Memory	◆ 4 DDR DIMM memory slots (supports up to 4GB memory) (Note) ◆ Supports dual channel DDR 400/333/266/200 DIMM
Slots	◆ 2 PCI Express x 16 slots ◆ 2 PCI Express x 1 slots ◆ 2 PCI slots
IDE Connections	◆ 2 IDE connection (UDMA 33/ATA 66/ATA 100/ATA 133), allows connection of 4 IDE devices
FDD Connections	◆ 1 FDD connection, allows connection of 2 FDD devices
Onboard SATA	◆ 4 SATA II ports from nVIDIA® nForce4 SLI controller (S_ATA0_SB, S_ATA1_SB, S_ATA2_SB, S_ATA3_SB); ◆ 4 SATA ports from Sil3114 controller (SATA0_SII, SATA1_SII, SATA2_SII, SATA3_SII)
Peripherals	◆ 1 parallel port supporting Normal/EPP/ECP mode ◆ 1 serial port (COMA) ◆ 10 USB 2.0/1.1 ports (rear x 4, front x 6 via cable) ◆ 3 IEEE1394b ports (requires cable) ◆ 1 front audio connector ◆ 1 IR/CIR connector ◆ 1 PS/2 keyboard port ◆ 1 PS/2 mouse port
Onboard LAN	◆ Onboard Marvell 8053 chip (10/100/1000 Mbit) (LAN1) ◆ Onboard VITESSE 8201 phy (10/100/1000 Mbit) (LAN2) ◆ 2 RJ45 ports
Onboard Audio	◆ ALC850 CODEC ◆ Supports Jack Sensing function ◆ Supports 2 / 4 / 6 / 8 channel audio ◆ Supports Line In ; Line Out (Front Speaker Out) ; MIC ; Surround Speaker Out (Rear Speaker Out) ; Center/Subwoofer Speaker Out ; Side Speaker Out connection ◆ SPDIF In/Out connection ◆ CD In connection
I/O Control	◆ IT8712F

(Note) Due to standard PC architecture, a certain amount of memory is reserved for system usage and therefore the actual memory size is less than the stated amount.
For example, 4 GB of memory size will instead be shown as 3.xxGB memory during system startup.

Hardware Monitor	◆ System voltage detection ◆ CPU temperature detection ◆ CPU / System / Power fan speed detection ◆ CPU warning temperature ◆ CPU fan failure warning ◆ CPU smart fan control
Onboard SATA RAID	◆ Onboard nForce4 SLI chipset (S_ATA0_SB, S_ATA1_SB, S_ATA2_SB, S_ATA3_SB) - supports data striping (RAID 0), mirroring (RAID 1), or striping + mirroring (RAID 0+1) - supports data transfer rate of up to 300 MB/s - supports hot plugging function - supports a maximum of 4 SATA II connections ◆ Onboard Silicon Image Sil3114 chip (SATA0_SII, SATA1_SII, SATA2_SII, SATA3_SII) - supports data striping (RAID 0), mirroring (RAID 1), striping + mirroring (RAID 0+1) or RAID 5 - supports data transfer rate of up to 150 MB/s - supports hot plugging function - supports a maximum of 4 SATA connections - supported on the Win 2003/2000/XP operating systems
BIOS	◆ Use of licensed AWARD BIOS ◆ Supports Dual BIOS/Q-Flash
Additional Features	◆ Supports @BIOS ◆ Supports EasyTune 5 (Note)
Overclocking	◆ Over Voltage via BIOS (CPU/ DDR/Core Power/ HT-Link)
Form Factor	◆ ATX form factor; 30.5cm x 24.4cm

(Note) EasyTune 5 functions may vary depending on different motherboards.

1-3 Installation of the CPU and Fan Heat Sink

CAUTION

Before installing the CPU, please comply with the following conditions:

1. Please make sure that the motherboard supports the CPU.
2. Please take note of the one indented corner of the CPU. If you install the CPU in the wrong direction, the CPU will not insert properly. If this occurs, please change the insert direction of the CPU.
3. Please add an even layer of heat sink paste between the CPU and fan heat sink.
4. Please make sure the fan heat sink is installed on the CPU prior to system use, otherwise overheating and permanent damage of the CPU may occur.
5. Please set the CPU host frequency in accordance with the processor specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the required standards for the peripherals. If you wish to set the frequency beyond the proper specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

1-3-1 Installation of the CPU

Check the processor pins to see that none are bent. Move the socket lever to the unlocked position as shown in Figure 1.(90° to the plane of the motherboard) prior to inserting the processor. The pin 1 location is designated on the processor by a copper triangle that matches up to a triangle on the socket as shown in Figure 2. Align the processor to the socket and gently lower it into place. Do not force the processor into the socket.

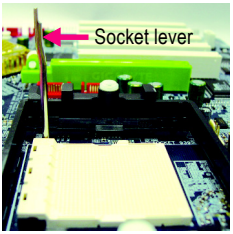


Fig.1
Position lever at a 90 degree angle.

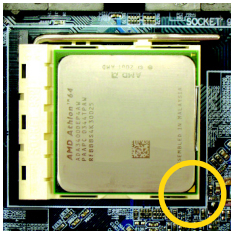


Fig.2
A gold-colored triangle is marked one edge of the CPU. Please align this edge with the socket edge closest to the CPU lever. Gently place the CPU into position making sure that the CPU pins fit perfectly into their holes. Once the CPU is positioned into it socket, place one finger down on the middle of the CPU and gently press the metal lever back into its original position.

CAUTION

Please use extra care when installing the CPU. The CPU will not fit if positioned incorrectly. Rather than applying force, please change the positioning of the CPU.

1-3-2 Installation of the Fan Heat Sink

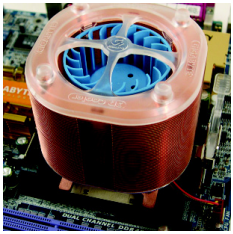


Fig.1
Before installing the CPU fan heat sink, please first add an even layer of heat sink paste on the surface of the CPU. Install all the fan heat sink components (Please refer to the fan heat sink manual for detailed installation instructions).

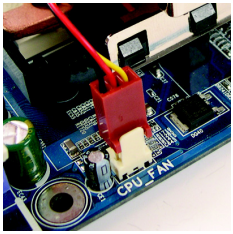


Fig.2
Please connect the fan heat sink power connector to the CPU_FAN connector located on the motherboard so that the fan heat sink can properly function to prevent CPU overheating.

NOTE The fan heat sink may adhere to the CPU as a result of hardening of the heat sink paste. To prevent such an occurrence, it is suggested that either thermal tape rather than heat sink paste be used for heat dissipation or using extreme care when removing the fan heat sink.

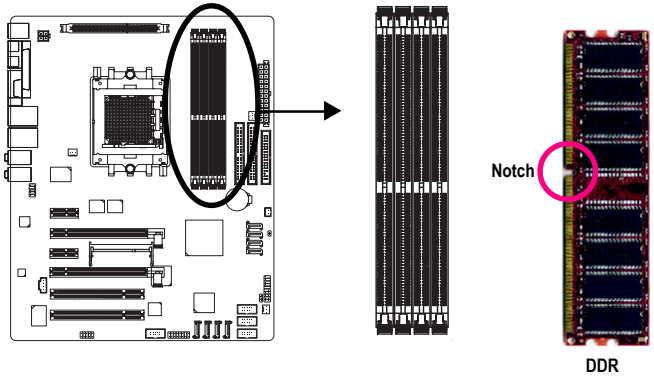
1-4 Installation of Memory

CAUTION

Before installing the memory modules, please comply with the following conditions:

1. Please make sure that the memory used is supported by the motherboard. It is recommended that memory of similar capacity, specifications and brand be used.
2. Before installing or removing memory modules, please make sure that the computer power is switched off to prevent hardware damage.
3. Memory modules have a foolproof insertion design. A memory module can be installed in only one direction. If you are unable to insert the module, please switch the direction.

The motherboard supports DDR memory modules, whereby BIOS will automatically detect memory capacity and specifications. Memory modules are designed so that they can be inserted only in one direction. The memory capacity used can differ with each slot.



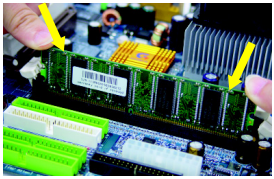


Fig.1
The DIMM socket has a notch, so the DIMM memory module can only fit in one direction. Insert the DIMM memory module vertically into the DIMM socket. Then push it down.

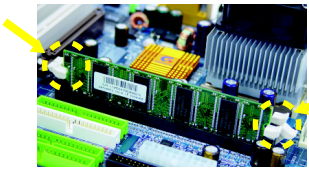


Fig.2
Close the plastic clip at both edges of the DIMM sockets to lock the DIMM module.
Reverse the installation steps when you wish to remove the DIMM module.

Dual Channel Memory Configuration

The GA-K8NXP-SLI supports the Dual Channel Technology. After operating the Dual Channel Technology, the bandwidth of Memory Bus will double.

Due to CPU limitation, if you want to operate the Dual Channel Technology, please follow the guidelines below for Dual Channel memory configuration.

1. Dual Channel mode will not be enabled if only one DDR memory module is installed.
2. To enable Dual Channel mode with 2 memory modules (it is recommended to use memory modules of identical brand, size, chips, and speed), you must install them into DIMM sockets of the same color.
3. To enable Dual Channel mode with 4 memory modules, it is recommended to use memory modules of identical brand, size, chips, and speed.

The following is a Dual Channel Memory configuration table: (DS: Double Side, SS: Single Side)

	DDR 1	DDR 2	DDR 3	DDR 4
2 memory modules	DS/SS	DS/SS	X	X
	X	X	DS/SS	DS/SS
4 memory modules	DS/SS	DS/SS	DS/SS	DS/SS



If two memory modules are to be used to achieve Dual Channel mode, we recommend installing them in DDR1 and DDR2 DIMM sockets.



All of the memory configurations below will cause system unable to boot. (DS: Double Side, SS: Single Side)

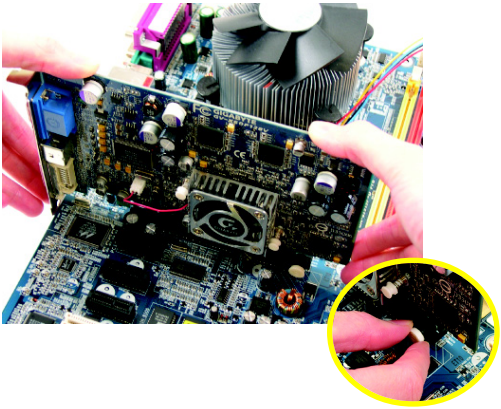
	DDR1	DDR2	DDR3	DDR4
1 memory module	X	DS/SS	X	X
	X	X	X	DS/SS
2 memory modules	X	DS/SS	DS/SS	X
	DS/SS	X	X	DS/SS
	X	DS/SS	X	DS/SS
3 memory modules	DS/SS	DS/SS	DS/SS	X
	X	DS/SS	DS/SS	DS/SS
	DS/SS	X	DS/SS	DS/SS
	DS/SS	DS/SS	X	DS/SS

1-5 Installation of Expansion Cards

You can install your expansion card by following the steps outlined below:

1. Read the related expansion card's instruction document before install the expansion card into the computer.
2. Remove your computer's chassis cover, screws and slot bracket from the computer.
3. Press the expansion card firmly into expansion slot in motherboard.
4. Be sure the metal contacts on the card are indeed seated in the slot.
5. Replace the screw to secure the slot bracket of the expansion card.
6. Replace your computer's chassis cover.
7. Power on the computer, if necessary, setup BIOS utility of expansion card from BIOS.
8. Install related driver from the operating system.

Installing a PCI Express x 16 expansion card:



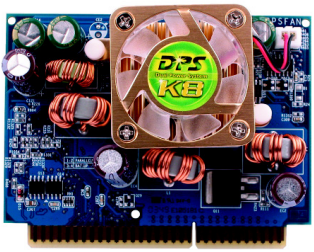
CAUTION

Please carefully pull out the small white-drawable bar at the end of the PCI Express x 16 slot when you try to install/uninstall the VGA card. Please align the VGA card to the onboard PCI Express x 16 slot and press firmly down on the slot. Make sure your VGA card is locked by the small white-drawable bar.

1-6 Installation of K8DPS (Dual Power System)

What is K8DPS?

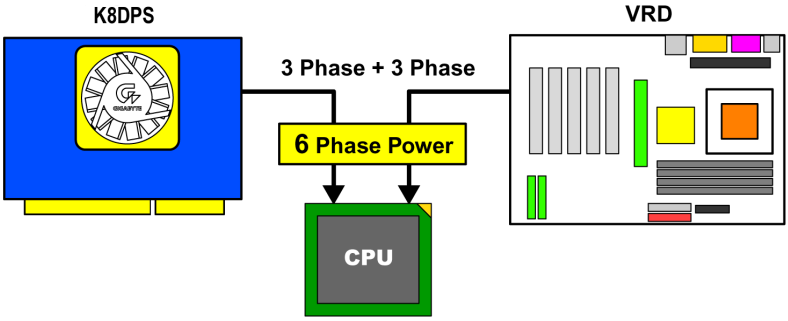
K8DPS (Dual Power System) is a daughter card which can provide you the Dual Power System function. A cool stylish neon blue K8DPS that supplies a total 6-phase power circuit design, delivers a high durable power design for the new generation motherboard.



The K8DPS can work in a Dual Power System:
Parallel Mode--
K8DPS and motherboard CPU power can work simultaneously, providing a total of 6-phase power circuit.

How to install K8 DPS?

1. The K8DPS socket (VRM_CONN) has a notch, so the K8DPS can only fit in one direction.
2. Insert the K8DPS vertically into the socket and then push it down.
3. Fix the K8DPS on the motherbard with the clip.
4. Reverse the installation steps if you want to remove the K8DPS.



1-7 Setup of SLI (Scalable Link Interface) Configuration

NVIDIA nForce4 SLI offers blistering graphics performance with the ability to bridge two NVIDIA SLI-ready PCI Express™ graphics cards! The SLI design takes advantage of the increased bandwidth of the PCI Express™ bus architecture, features hardware and software innovations within NVIDIA GPU (graphics processing unit) and the NVIDIA nForce4 chipset. Together, the NVIDIA SLI technologies work seamlessly to allow two graphics cards to operate in parallel and share the work and deliver heart-pounding PC performance. This section introduces steps to configure an SLI system on the GA-K8NXP-SLI motherboard.

Before You Begin--

I. Understanding the GIGABYTE SLI switch module:

You can find an SLI switch module socket inserted with an SLI switch module between the first and second PCIE x 16 slots. The SLI switch module has gold edge connectors on the top and bottom of it. One connector is SLI Mode and the other is Normal Mode.



Normal Mode: Only the first PCIE x 16 slot is available and can operate at up to x 16 in Normal Mode.

SLI Mode: In SLI Mode, the two PCIE x 16 slots can run in two modes. You can either use them as two individual x 8 slots or install two SLI-ready PCIE x 16 cards (Example: GIGABYTE GV-NX66T128D) of the same model and link them together with an SLI bridge connector to enable SLI function to provide enhanced performance.

To change to a mode, you need to insert the swtich module into the switch socket with the gold edge connector on the top. As not all PCIE slots are available while in SLI or Normal Mode, please refer to the table below to check PCIE slots available in SLI or Normal Mode before installation.

	PCIE_1	PCIE_16_1	PCIE_2	PCIE_16_2
SLI Mode	Available	Available*	Not available	Available*
Normal Mode	Available	Available	Available	Not available

"*" can run at up to PCIE x 8 mode.

CAUTION

1. Installing a device to a PCIE slot when it's not available might damage the system.
2. We do not recommend removing the SLI switch module from the motherboard because in that case, all PCIE slots will not be available except for the PCIE_16_1 slot, and the slot can be used only as a PCIE x 8 slot.

II. Power Requirements:

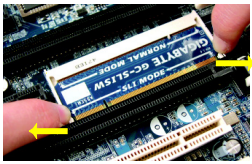
The exact power requirements will depend on your overall system configurations. You need a power supply that can provide sufficient and stable power to your system and the two SLI graphics cards. Please refer to the table below to check recommended power for different systems.

System configurations	System A	System B
Processors	AMD Athlon 64 FX-53	AMD Athlon 64 4000+
PCIE x 16 video cards	2 NVIDIA 6800 Ultra cards	2 NVIDIA 6600 GT cards
DDR memory modules	4 DIMMs	2 DIMMs
Hard drives/Optical drives	4 hard drives + 2 optical drives	1 hard drives + 1 optical drives
Expansion cards	1 PCIE x1 card + 2 PCI cards	0
USB devices	10	4
IEEE1394 devices	1	0
Required +12V current	**25A or above**	**20A or above**
Power supply requirement	**500W or above**	**350W or above**

III. Supported Operating Systems:
Only Windows XP operating system is currrently supported by the NVIDIA SLI technology.

Enabling SLI Mode--
Follow the steps below to enable SLI Mode. Note that as the switch module is inserted in the socket in the Normal Mode direction by factory default, the first step to enable SLI mode on your system is to take out the module from the socket and insert it in the SLI Mode direction.

Step 1: Gently spread the retaining clips of the socket and the module may then be removed from the socket. Hold the module by the edges and lift it away from the socket.



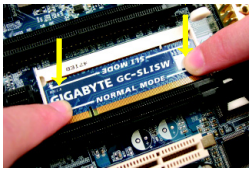
Step 2: Position the SLI Mode side of the module above the socket at a 25° angle. Align the small notch at the top edge of the module with the key in the socket.



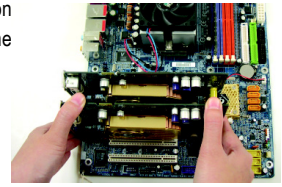
Step 3: Insert the top edge of the module into the socket. Make sure the gold edge connectors are fully inserted.



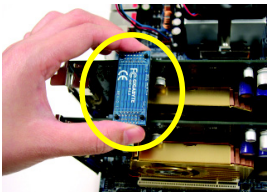
Step 4: Gently press down on the two ends of the module until it is locked in place by the socket clips. (You should hear a "click" when the module is attached.)



Connecting Two Graphics Cards:
Step 1: Observe the steps in "1-5 Installation of Expansion Cards" on page 16 and install two SLI-ready graphics cards of the same model to the PCIE_16_1 and PCIE_16_2 slots.



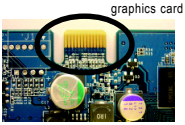
Step 2: Insert the SLI bridge (the GC-SLICON) to the SLI gold edge connector on top of both cards. Make sure the two mini female slots on the bridge connector securely fit onto the SLI gold edge connetors of both cards.



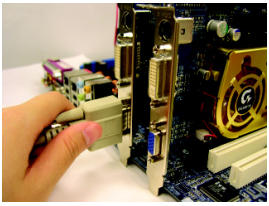
Female slots on the bridge connector



Gold edge connector on the top of graphics card

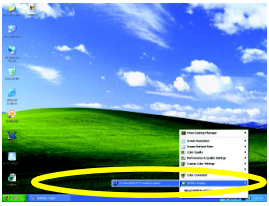


Step 3: Plug the display cable into either one of the two graphics cards for display output. If you plug the display cable to the card on the PCIE_16_1 slot, make sure to set **Init Display First** in BIOS Setup to **PEG**; if you plug the display cable to the card on the PCIE_16_2 slot, set **Init Display First** to **PEG(Slot2).**

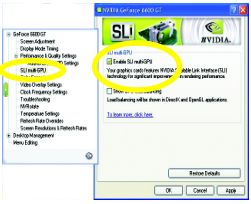


Graphics Card Driver Setting:

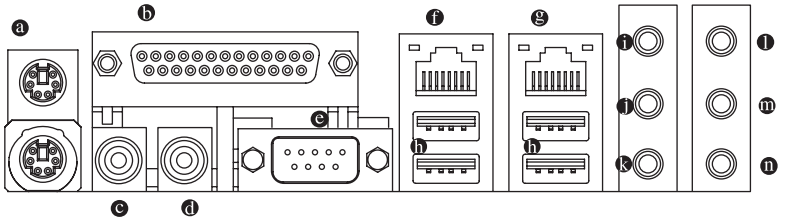
Step 1: After installing graphics card driver in operating system, right-click the NVIDIA icon in your system tray and then select **NVIDIA Display**. The NVIDIA control panel will appear.



Step 2: Select **SLI multi-GPU** from the side menu and then select the **Enable SLI multi-GPU** checkbox in the SLI multi-GPU dialog box. System will restart after you click **Apply**. Then the SLI configuration is completed.



1-8 I/O Back Panel Introduction



a PS/2 Keyboard and PS/2 Mouse Connector

To install a PS/2 port keyboard and mouse, plug the mouse to the upper port (green) and the keyboard to the lower port (purple).

b Parallel Port

The parallel port allows connection of a printer, scanner and other peripheral devices.

c SPDIF_I (SPDIF In)

Use SPDIF In feature only when your device has digital output function.

d SPDIF_O (SPDIF Out)

The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder.

e COMA (Serial Port)

Connects to serial-based mouse or data processing devices.

f LAN Port 2

The provided Internet connection is Gigabit Ethernet, providing data transfer speeds of 10/100/1000Mbps.

g LAN Port 1

The provided Internet connection is Gigabit Ethernet (PCI Express Gigabit), providing data transfer speeds of 10/100/1000Mbps.

h USB port

Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard, mouse, scanner, zip, speaker...etc. have a standard USB interface. Also make sure your OS supports USB controller. If your OS does not support USB controller, please contact OS vendor for possible patch or driver upgrade. For more information please contact your OS or device(s) vendors.

i Line In

Devices like CD-ROM, walkman etc. can be connected to Line In jack.

j Line Out (Front Speaker Out)

Connect the stereo speakers, earphone or front surround speakers to this connector.

k MIC In

Microphone can be connected to MIC In jack.

l Center/Subwoofer Speaker Out

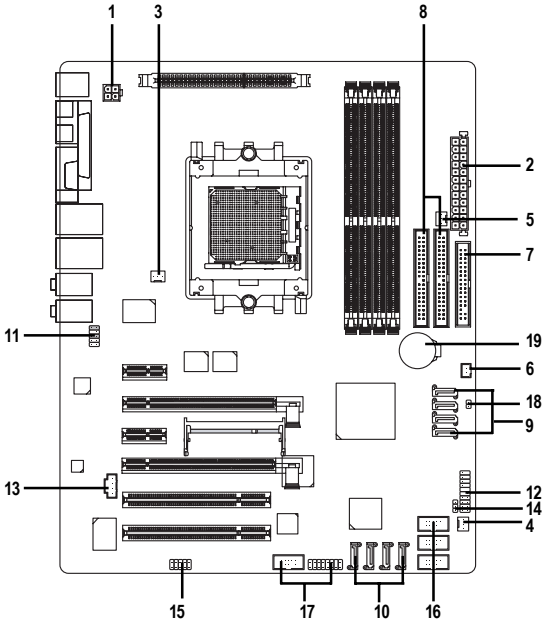
Connect the Center/Subwoofer speakers to this connector.

⓫ **Rear Speaker Out**
Connect the rear surround speakers to this connector.

⓬ **Side Speaker Out**
Connect the side surround speakers to this connector.

NOTE You can use audio software to configure 2-/4-/6-/8-channel audio functioning.

1-9 Connectors Introduction



1) ATX_12V	11) F_AUDIO
2) ATX (Power Connector)	12) F_PANEL
3) CPU_FAN	13) CD_IN
4) SYS_FAN	14) PWR_LED
5) PWR_FAN	15) IR/CIR
6) NB_FAN	16) F_USB1 / F_USB2/F_USB3
7) FDD	17) F1_1394/F2_1394
8) IDE1 / IDE2	18) CLR_CMOS
9) S_ATA0/1/2/3_SB	19) BATTERY
10) SATA0/1/2/3_SII	

1/2) ATX_12V/ATX (Power Connector)

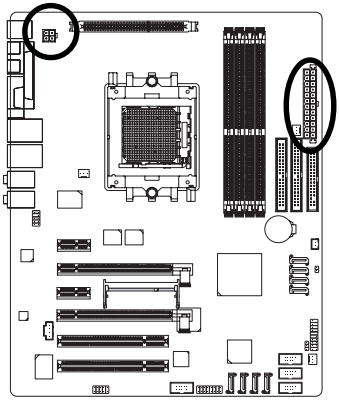
With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, please make sure that all components and devices are properly installed. Align the power connector with its proper location on the motherboard and connect tightly.

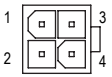
The ATX_12V power connector mainly supplies power to the CPU. If the ATX_12V power connector is not connected, the system will not start.

Caution!

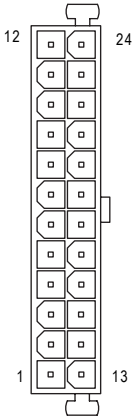
Please use a power supply that is able to handle the system voltage requirements. It is recommended that a power supply that can withstand high power consumption be used (300W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable system or a system that is unable to start.

If you use a 24-pin ATX power supply, please remove the small cover on the power connector on the motherboard before plugging in the power cord ; otherwise, please do not remove it.





Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V



Pin No.	Definition
1	3.3V
2	3.3V
3	GND
4	VCC
5	GND
6	VCC
7	GND
8	Power Good
9	5V SB(stand by +5V)
10	+12V
11	+12V
12	3.3V(Only for 24pins ATX)
13	3.3V
14	-12V
15	GND
16	PS_ON(soft On/Off)
17	GND
18	GND
19	GND
20	-5V
21	VCC
22	VCC
23	VCC
24	GND

3/4/5) CPU_FAN / SYS_FAN/ PWR_FAN (Cooler Fan Power Connector)

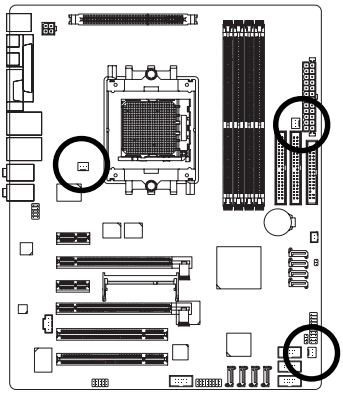
The cooler fan power connector supplies a +12V power voltage via a 3-pin power connector and possesses a foolproof connection design.

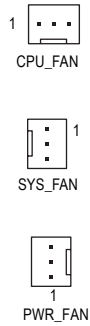
Most coolers are designed with color-coded power connector wires. A red power connector wire indicates a positive connection and requires a +12V power voltage. The black connector wire is the ground wire (GND).

Please remember to connect the power to the cooler to prevent system overheating and failure.

Caution!

Please remember to connect the power to the CPU fan to prevent CPU overheating and failure.

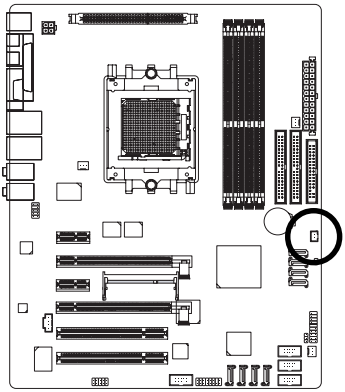




Pin No.	Definition
1	GND
2	+12V
3	Sense

6) NB_FAN (Chip Fan Power Connector)

If you installed wrong direction, the chip fan will not work. Sometimes will damage the chip fan. (Usually black cable is GND)

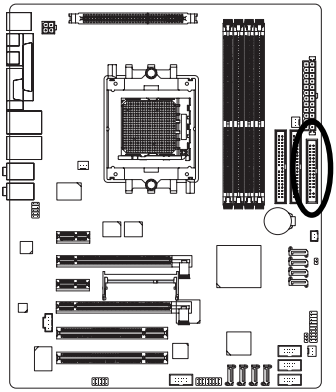


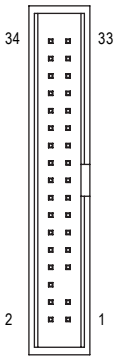


Pin No.	Definition
1	+12V
2	GND

7) FDD (FDD Connector)

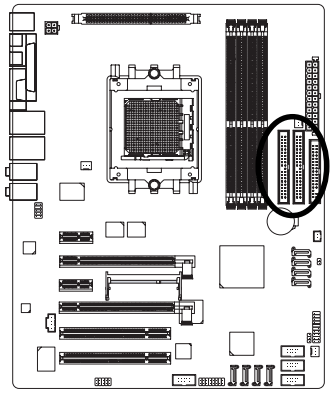
The FDD connector is used to connect the FDD cable while the other end of the cable connects to the FDD drive. The types of FDD drives supported are: 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB. Please connect the red power connector wire to the pin1 position.

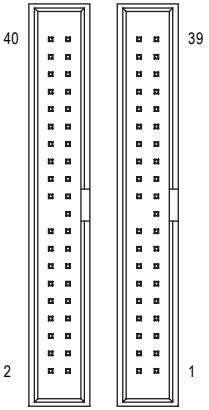




8) IDE1 / IDE2 (IDE Connector)

An IDE device connects to the computer via an IDE connector. One IDE connector can connect to one IDE cable, and the single IDE cable can then connect to two IDE devices (hard drive or optical drive). If you wish to connect two IDE devices, please set the jumper on one IDE device as Master and the other as Slave (for information on settings, please refer to the instructions located on the IDE device).

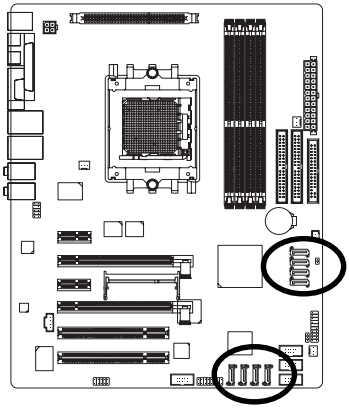


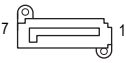


9) S_ATA0/1/2/3_SB (Serial ATA II Connectors, Controlled by nForce4 SLI)

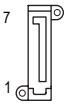
10) SATA0/1/2/3_SII (Serial ATA Connectors, Controlled by Sil3114)

Serial ATA II can provide up to 300MB/s transfer rate while Serial ATA provides up to 150MB/s transfer rate. Please refer to the BIOS setting for the Serial ATA(II) and install the proper driver in order to work properly.





S_ATA_SB
(Controlled by nForce4 SLI)



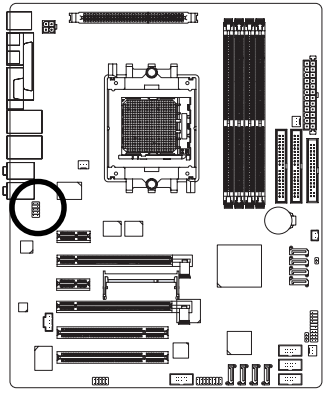
SATA_SII
(Controlled by Sil3114)

Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

11) F_AUDIO (Front Audio Panel Connector)

If you want to use Front Audio connector, you must remove 5-6, 9-10 Jumper.

In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assigment on the cable is the same as the pin assigment on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer. Please note, you can have the alternative of using front audio connector or of using rear audio connector to play sound.

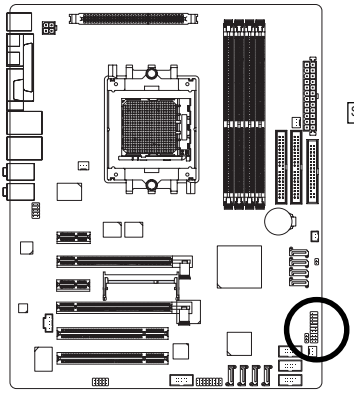


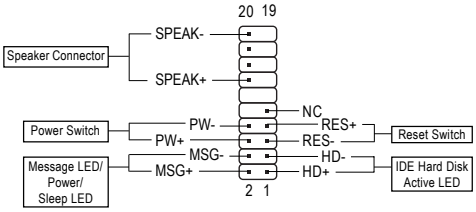


Pin No.	Definition
1	MIC
2	GND
3	MIC_BIAS
4	Power
5	Front Audio (R)
6	Rear Audio (R)/ Return R
7	NC
8	No Pin
9	Front Audio (L)
10	Rear Audio (L)/ Return L

12) F_PANEL (Front Panel Jumper)

Please connect the power LED, PC speaker, reset switch and power switch etc of your chassis frontpanel to the F_PANEL connector according to the pin assignment below.

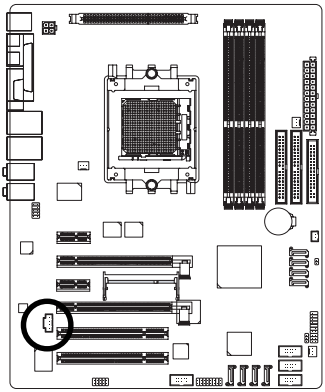




HD (IDE Hard Disk Active LED) (Blue)	Pin 1: LED anode(+) Pin 2: LED cathode(-)
SPEAK (Speaker Connector) (Amber)	Pin 1: VCC(+) Pin 2- Pin 3: NC Pin 4: Data(-)
RES (Reset Switch) (Green)	Open: Normal Operation Close: Reset Hardware System
PW (Power Switch) (Red)	Open: Normal Operation Close: Power On/Off
MSG (Message LED/Power/Sleep LED) (Yellow)	Pin 1: LED anode(+) Pin 2: LED cathode(-)
NC (Purple)	NC

13) CD_IN (CD In Connector)

Connect CD-ROM or DVD-ROM audio out to the connector.

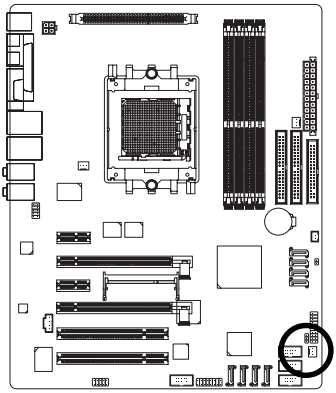




Pin No.	Definition
1	CD-L
2	GND
3	GND
4	CD-R

14) PWR_LED

PWR_LED is connect with the system power indicator to indicate whether the system is on/off. It will blink when the system enters suspend mode.

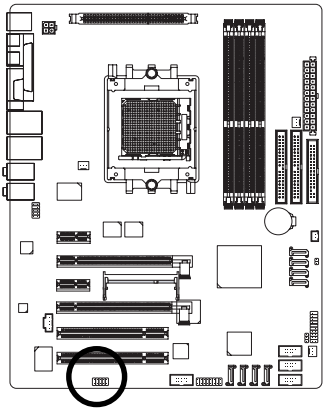




Pin No.	Definition
1	MPD+
2	MPD-
3	MPD-

15) IR_CIR

Make sure the pin 1 on the IR device is align with pin one the connector. To enable the IR/CIR function, you are required to purchase an optional IR/CIR module. To use IR function only, please connect IR module to Pin1 to Pin5. Be careful with the polarity of the IR/CIR connector. Check the pin assignment carefully while you connect the IR/CIR cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional IR/CIR cable, please contact your local dealer.

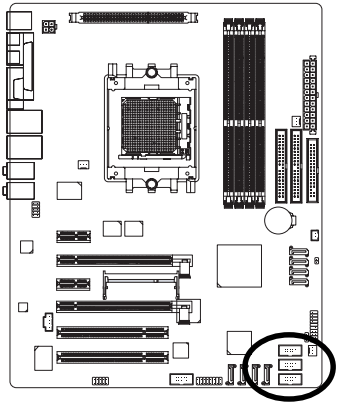


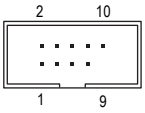


Pin No.	Definition
1	VCC
2	NC
3	IRRX
4	GND
5	IRTX
6	NC
7	CIRRX
8	+5VSB
9	CIRTX
10	NC

16) F_ USB1 / F_USB2/F_USB3 (Front USB Connector)

Be careful with the polarity of the front USB connector. Check the pin assignment carefully while you connect the front USB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional front USB cable, please contact your local dealer.

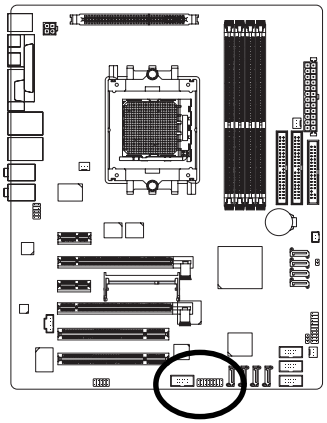




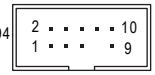
Pin No.	Definition
1	Power
2	Power
3	USB DX-
4	USB Dy-
5	USB DX+
6	USB Dy+
7	GND
8	GND
9	No Pin
10	NC

17) F1_1394/F2_1394 (IEEE 1394 Connectors)

Serial interface standard set by Institute of Electrical and Electronics Engineers, which has features like high speed, high bandwidth and hot plug. Be careful with the polarity of the IEEE1394 connector. Check the pin assignment carefully while you connect the IEEE1394 cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional IEEE1394 cable, please contact your local dealer.



F1_1394



Pin No.	Definition
1	TPA0+
2	TPA0-
3	GND
4	GND
5	TPB0+
6	TPB0-
7	No Pin
8	Power
9	Power
10	GND

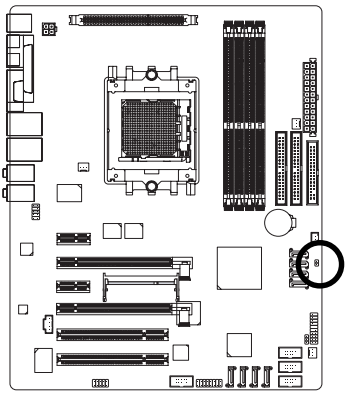
F2_1394



Pin No.	Definition
1	Power
2	Power
3	TPA1+
4	TPA1-
5	GND
6	GND
7	TPB1+
8	TPB1-
9	Power
10	Power
11	TPA2+
12	TPA2-
13	GND
14	No Pin
15	TPB2+
16	TPB2-

18) CLR_CMOS (Clear CMOS)

You may clear the CMOS data to its default values by this header. To clear CMOS, temporarily short 1-2 pin. Default doesn't include the jumper to prevent from improper use of this header.



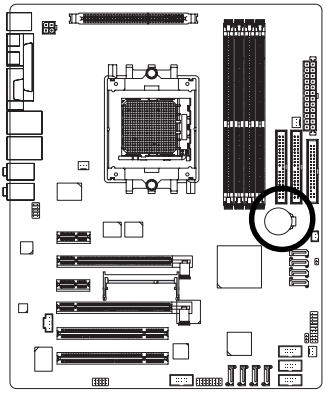


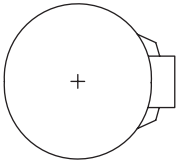
Open: Normal



Short: Clear CMOS

19) BATTERY





- ❖ Danger of explosion if battery is incorrectly replaced.
- ❖ Replace only with the same or equivalent type recommended by the manufacturer.
- ❖ Dispose of used batteries according to the manufacturer's instructions.

If you want to erase CMOS...

1. Turn OFF the computer and unplug the power cord.
2. Remove the battery, wait for 30 second.
3. Re-install the battery.
4. Plug the power cord and turn ON the computer.

Chapter 2 BIOS Setup

BIOS (Basic Input and Output System) includes a CMOS SETUP utility which allows user to configure required settings or to activate certain system features.
The CMOS SETUP saves the configuration in the CMOS SRAM of the motherboard.
When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS SRAM.
When the power is turned on, pushing the <Del> button during the BIOS POST (Power-On Self Test) will take you to the CMOS SETUP screen. You can enter the BIOS setup screen by pressing "Ctrl + F1".
When setting up BIOS for the first time, it is recommended that you save the current BIOS to a disk in the event that BIOS needs to be reset to its original settings. If you wish to upgrade to a new BIOS, either Gigabyte's Q-Flash or @BIOS utility can be used.
Q-Flash allows the user to quickly and easily update or backup BIOS without entering the operating system.
@BIOS is a Windows-based utility that does not require users to boot to DOS before upgrading BIOS but directly download and update BIOS from the Internet.

CONTROL KEYS

<↑><↓><←><→>	Move to select item
<Enter>	Select Item
<Esc>	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
<Page Up>	Increase the numeric value or make changes
<Page Down>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F2>	Item Help
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F7>	Load the Optimized Defaults
<F8>	Dual BIOS/Q-Flash utility
<F9>	System Information
<F10>	Save all the CMOS changes, only for Main Menu

Main Menu

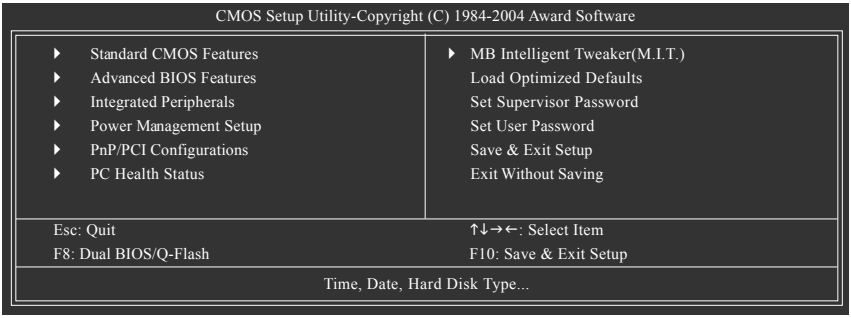
The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu / Option Page Setup Menu

Press <F1> to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

The Main Menu (For example: BIOS Ver. : F2g)

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (as figure below) will appear on the screen. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.



NOTE If you can't find the setting you want, please press "Ctrl+F1" to search the advanced option hidden.

- **Standard CMOS Features**
  This setup page includes all the items in standard compatible BIOS.
- **Advanced BIOS Features**
  This setup page includes all the items of Award special enhanced features.
- **Integrated Peripherals**
  This setup page includes all onboard peripherals.
- **Power Management Setup**
  This setup page includes all the items of Green function features.
- **PnP/PCI Configuration**
  This setup page includes all the configurations of PCI & PnP ISA resources.
- **PC Health Status**
  This setup page is about system autodetect temperature, voltage, fan speed, etc.
- **MB Intelligent Tweaker(M.I.T.)**
  This setup page is to control CPU clock and frequency ratio.
- **Load Optimized Defaults**
  Optimized Defaults indicates the value of the system parameters which the system would be in best performance configuration.
- **Set Supervisor Password**
  Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.

- **Set User Password**

  Change, set, or disable password. It allows you to limit access to the system.

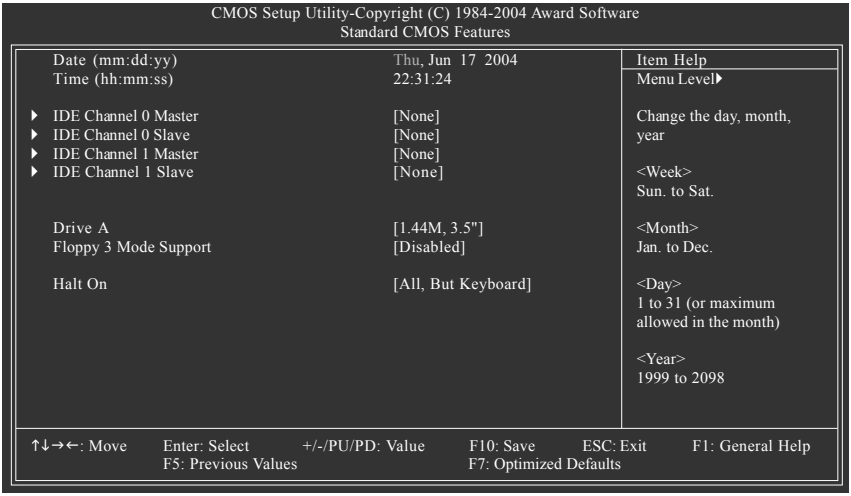
- **Save & Exit Setup**

  Save CMOS value settings to CMOS and exit setup.

- **Exit Without Saving**

  Abandon all CMOS value changes and exit setup.

2-1 Standard CMOS Features



☞ **Date**

The date format is <week>, <month>, <day>, <year>.

- ⏩ Week — The week, from Sun to Sat, determined by the BIOS and is display only
- ⏩ Month — The month, Jan. Through Dec.
- ⏩ Day — The day, from 1 to 31 (or the maximum allowed in the month)
- ⏩ Year — The year, from 1999 through 2098

☞ **Time**

The times format in <hour> <minute> <second>. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

☞ **IDE Channel 0 Master/Slave; IDE Channel 1 Master/Slave**

⏩ IDE HDD Auto-Detection Press "Enter" to select this option for automatic device detection.

⏩ IDE Channel 0 Master/Slave; IDE Channel 1 Master/Slave devices setup. You can use one of three methods:

- Auto — Allows BIOS to automatically detect IDE devices during POST. (Default value)
- None — Select this if no IDE devices are used and the system will skip the automatic detection step and allow for faster system start up.
- Manual — User can manually input the correct settings.

- ⏩ Access Mode — Use this to set the access mode for the hard drive. The four options are: CHS/LBA/Large/Auto(default:Auto)
- ⏩ Capacity — Capacity of currently installed hard drive.

Hard drive information should be labeled on the outside drive casing. Enter the appropriate option based on this information.

- ⏩ Cylinder — Number of cylinders
- ⏩ Head — Number of heads
- ⏩ Precomp — Write precomp
- ⏩ Landing Zone — Landing zone

⏩ Sector Number of sectors

If a hard disk has not been installed, select NONE and press <Enter>.

☞ **Drive A**

The category identifies the types of floppy disk drive A that has been installed in the computer.

⏩ None No floppy drive installed

⏩ 360K, 5.25" 5.25 inch PC-type standard drive; 360K byte capacity.

⏩ 1.2M, 5.25" 5.25 inch AT-type high-density drive; 1.2M byte capacity (3.5 inch when 3 Mode is Enabled).

⏩ 720K, 3.5" 3.5 inch double-sided drive; 720K byte capacity

⏩ 1.44M, 3.5" 3.5 inch double-sided drive; 1.44M byte capacity.

⏩ 2.88M, 3.5" 3.5 inch double-sided drive; 2.88M byte capacity.

☞ **Floppy 3 Mode Support (for Japan Area)**

⏩ Disabled Normal Floppy Drive. (Default value)

⏩ Drive A Drive A is 3 mode Floppy Drive.

☞ **Halt on**

The category determines whether the computer will stop if an error is detected during power up.

⏩ No Errors The system boot will not stop for any error that may be detected and you will be prompted.

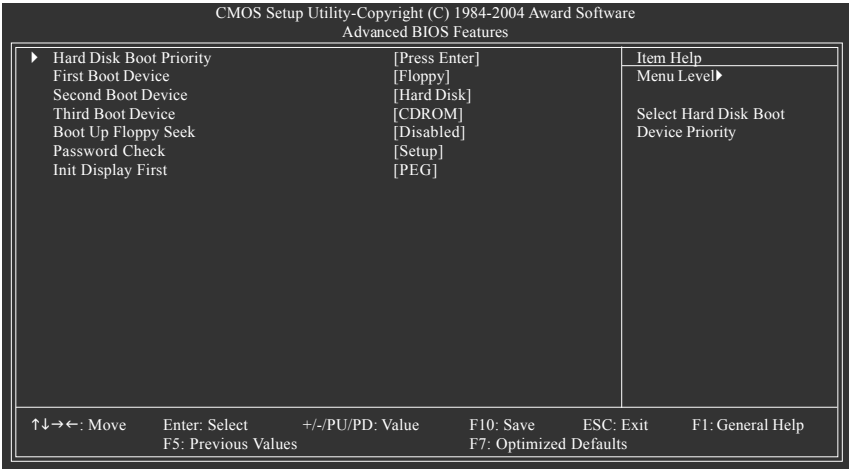
⏩ All Errors Whenever the BIOS detects a non-fatal error the system will be stopped.

⏩ All, But Keyboard The system boot will not stop for a keyboard error; it will stop for all other errors. (Default value)

⏩ All, But Diskette The system boot will not stop for a disk error; it will stop for all other errors.

⏩ All, But Disk/Key The system boot will not stop for a keyboard or disk error; it will stop for all

2-2 Advanced BIOS Features



☞ **Hard Disk Boot Priority**

Select boot sequence for onboard(or add-on cards) SCSI, RAID, etc.

Use <↑> or <↓> to select a device, then press<+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.

☞ **First / Second / Third Boot Device**

- ⏩ Floppy Select your boot device priority by Floppy.
- ⏩ LS120 Select your boot device priority by LS120.
- ⏩ Hard Disk Select your boot device priority by Hard Disk.
- ⏩ CDROM Select your boot device priority by CDROM.
- ⏩ ZIP Select your boot device priority by ZIP.
- ⏩ USB-FDD Select your boot device priority by USB-FDD.
- ⏩ USB-ZIP Select your boot device priority by USB-ZIP.
- ⏩ USB-CDROM Select your boot device priority by USB-CDROM.
- ⏩ USB-HDD Select your boot device priority by USB-HDD.
- ⏩ Legacy LAN Select your boot device priority by LAN.
- ⏩ Disabled Select your boot device priority by Disabled.

☞ **Boot Up Floppy Seek**

During POST, BIOS will determine the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks 720K, 1.2M and 1.44M are all 80 tracks.

- ⏩ Enabled BIOS searches for floppy disk drive to determine it is 40 or 80 tracks. Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.
- ⏩ Disabled BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360K. (Default value)

☞ **Password Check**

⏩ System The system can not boot and can not access to Setup page will be denied if the correct password is not entered at the prompt.

⏩ Setup The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt. (Default value)

☞ **Init Display First**

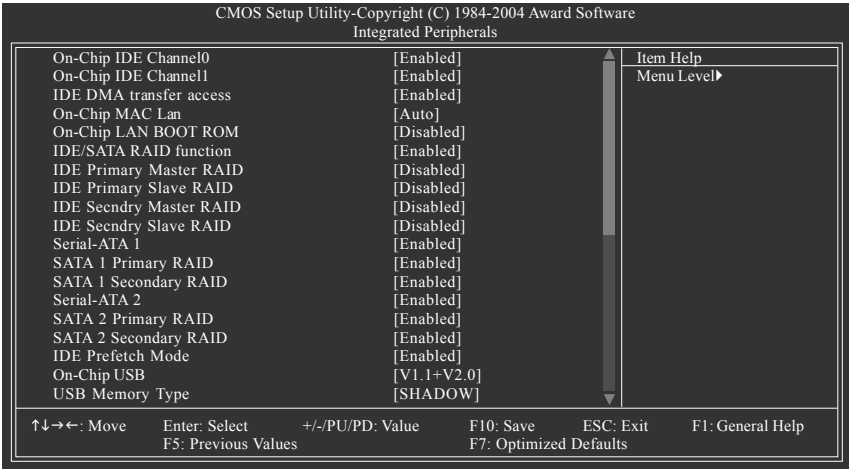
This feature allows you to select the first initiation of the monitor display from which card when you install a PCI card and a PCI Express VGA card on the motherboard.

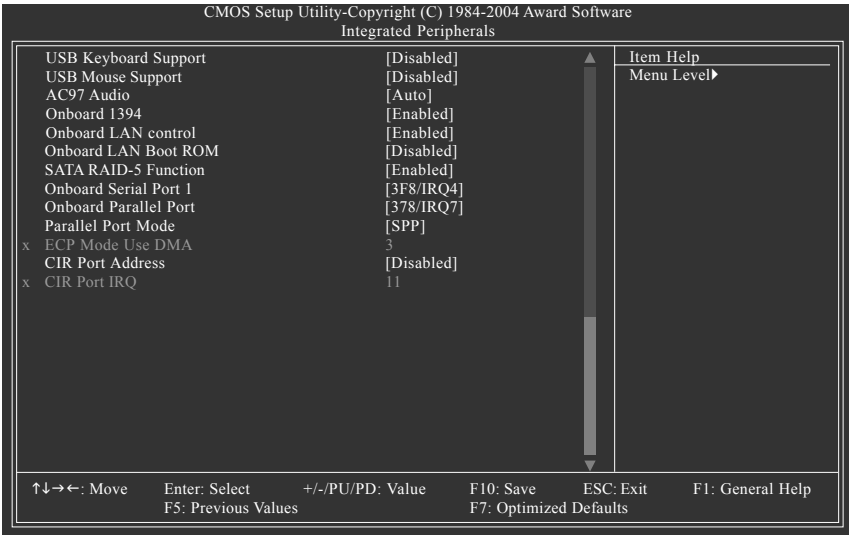
⏩ PCI slot Set Init Display First to PCI VGA card.

⏩ PEG Set Init Display First to PCI Express VGA card (Slot1). (Default value)

⏩ PEG (Slot2) Set Init Display First to PCI Express VGA card (Slot2) card.

2-3 Integrated Peripherals





☞ **On-Chip IDE Channel0**

- ⏩ Enabled Enable onboard 1st channel IDE port. (Default value)
- ⏩ Disabled Disable onboard 1st channel IDE port.

☞ **On-Chip IDE Channel1**

- ⏩ Enabled Enable onboard 2nd channel IDE port. (Default value)
- ⏩ Disabled Disable onboard 2nd channel IDE port.

☞ **IDE DMA transfer access**

- ⏩ Enabled Enable IDE DMA transfer access. (Default Value)
- ⏩ Disabled Disable IDE DMA transfer access.

☞ **On-Chip MAC Lan (LAN 2)**
- ⏩ Auto Enable on-chip LAN function. (Default value)
- ⏩ Disabled Disable on-chip LAN function.

☞ **On-Chip LAN BOOT ROM**

This function decide whether to invoke the boot ROM of the onboard LAN chip.
- ⏩ Enabled Enable this function.
- ⏩ Disabled Disable this function. (Default value)

☞ **IDE/SATA RAID function**
- ⏩ Enabled Enable IDE/SATA function. (Default value)
- ⏩ Disabled Disable IDE/SATA function.

☞ **IDE Primary Master RAID**
- ⏩ Enabled Enable 1st master channel IDE RAID function.
- ⏩ Disabled Disable this function. (Default value)

☞ **IDE Primary Slave RAID**
- ⏩ Enabled Enable 1st slave channel IDE RAID function.
- ⏩ Disabled Disable this function. (Default value)

☞ **IDE Secndry Master RAID**
- ⏩ Enabled Enable 2nd master channel IDE RAID function.
- ⏩ Disabled Disable this function. (Default value)

☞ **IDE Secndry Slave RAID**
- ⏩ Enabled Enable 2nd slave channel IDE RAID function.
- ⏩ Disabled Disable this function. (Default value)

☞ **Serial-ATA 1 (Onboard nVIDIA nForce4 SLI chipset)**
- ⏩ Enabled Enable Serial-ATA 1 support. (Default Value)
- ⏩ Disabled Disable Serial-ATA 1 support.

☞ **SATA 1 Primary RAID**
- ⏩ Enabled Enable SATA 1 1st SATA RAID function.(Default value)
- ⏩ Disabled Disable this function.

☞ **SATA 1 Secondary RAID**
- ⏩ Enabled Enable SATA 1 2nd SATA RAID function.(Default value)
- ⏩ Disabled Disable this function.

☞ **Serial-ATA 2 (Onboard nVIDIA nForce4 SLI chipset)**
- ⏩ Enabled Enable Serial-ATA 2 support. (Default Value)
- ⏩ Disabled Disable Serial-ATA 2 support.

☞ **SATA 2 Primary RAID**
- ⏩ Enabled Enable SATA 2 1st SATA RAID function.(Default value)
- ⏩ Disabled Disable this function.

☞ **SATA 2 Secondary RAID**
- ⏩ Enabled Enable SATA 2 2nd SATA RAID function.(Default value)
- ⏩ Disabled Disable this function.

☞ **IDE Prefetch Mode**
- ⏩ Enabled Enable IDE Prefetch Mode. (Default value)
- ⏩ Disabled Disable IDE Prefetch Mode.

☞ **On-Chip USB**

- ⏩ V1.1+V2.0 Enable USB 1.1 and USB 2.0 controllers. (Default Value)
- ⏩ V1.1 Enable only USB 1.1 controller
- ⏩ Disabled Disable onchip USB support.

☞ **USB Memory Type**

- ⏩ SHADOW Set USB Memory Type to SHADOW. (Default value)
- ⏩ Base Memory (640K) Set USB Memory Type to Base Memory (640K).

☞ **USB Keyboard Support**

- ⏩ Enabled Enable USB keyboard support.
- ⏩ Disabled Disable USB keyboard support. (Default value)

☞ **USB Mouse Support**

- ⏩ Enabled Enable USB mouse support.
- ⏩ Disabled Disable USB mouse support. (Default value)

☞ **AC97 Audio**

- ⏩ Auto Enable onboard AC'97 audio function. (Default value)
- ⏩ Disabled Disable this function.

☞ **Onboard 1394**

- ⏩ Enabled Enable onboard IEEE1394 function.(Default value)
- ⏩ Disabled Disable onboard IEEE1394 function.

☞ **Onboard LAN control (LAN1)**

- ⏩ Enabled Enable onboard LAN chip function.(Default value)
- ⏩ Disabled Disable onboard LAN chip function.

☞ **Onboard LAN Boot ROM**

This function decide whether to invoke the boot ROM of the onboard LAN chip.

- ⏩ Enabled Enable this function.
- ⏩ Disabled Disable this function. (Default value)

☞ **SATA RAID-5 Function (Controlled by Sil3114 chip)**

This option is to enable or disable the Serial ATA function of the Sil3114 controller. To set either RAID or non-RAID mode, you have to enter the Sil3114 RAID BIOS utility. (Upon system reboot, press <Ctrl+S> or <F4> key to enter Sil3114 RAID BIOS). If you wish to set up a non-RAID configuration, please select JBOD mode from the RAID BIOS.

- ⏩ Enabled Enable onboard Serial ATA Chip.(Default value)
- ⏩ Disabled Disable onboard Serial ATA Chip.

☞ **Onboard Serial Port 1**

- ⏩ Auto BIOS will automatically setup the port 1 address.
- ⏩ 3F8/IRQ4 Enable onboard Serial port 1 and address is 3F8/IRQ4. (Default value)
- ⏩ 2F8/IRQ3 Enable onboard Serial port 1 and address is 2F8/IRQ3.
- ⏩ 3E8/IRQ4 Enable onboard Serial port 1 and address is 3E8/IRQ4.
- ⏩ 2E8/IRQ3 Enable onboard Serial port 1 and address is 2E8/IRQ3.
- ⏩ Disabled Disable onboard Serial port 1.

☞ **Onboard Parallel Port**

- ⏩ Disabled — Disable onboard LPT port.
- ⏩ 378/IRQ7 — Enable onboard LPT port and address is 378/IRQ7. (Default value)
- ⏩ 278/IRQ5 — Enable onboard LPT port and address is 278/IRQ5.
- ⏩ 3BC/IRQ7 — Enable onboard LPT port and address is 3BC/IRQ7.

☞ **Parallel Port Mode**

- ⏩ SPP — Using Parallel port as Standard Parallel Port. (Default value)
- ⏩ EPP — Using Parallel port as Enhanced Parallel Port.
- ⏩ ECP — Using Parallel port as Extended Capabilities Port.
- ⏩ ECP+EPP — Using Parallel port as ECP and EPP mode.

☞ **ECP Mode Use DMA**

- ⏩ 3 — Set ECP Mode Use DMA to 3. (Default value)
- ⏩ 1 — Set ECP Mode Use DMA to 1.

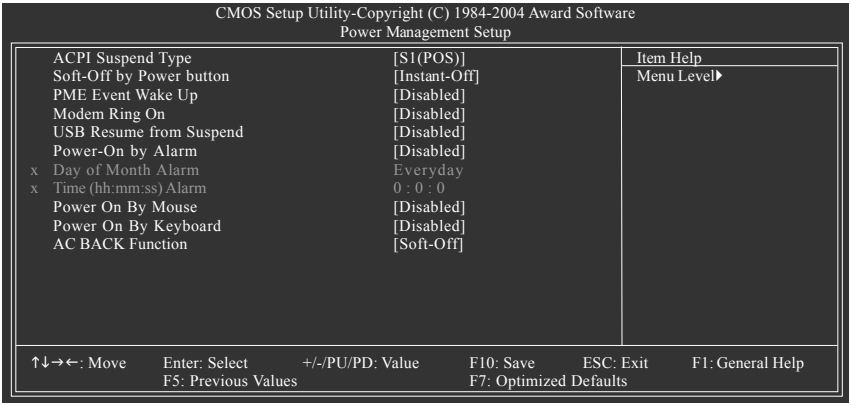
☞ **CIR Port Address**

- ⏩ 310 — Set CIR Port Address to 310.
- ⏩ 320 — Set CIR Port Address to 320.
- ⏩ Disabled — Disable this function. (Default value)

☞ **CIR Port IRQ**

- ⏩ 5 — Set CIR Port IRQ to 5.
- ⏩ 11 — Set CIR Port IRQ to 11. (Default value)

2-4 Power Management Setup



☞ **ACPI Suspend Type**

- S1(POS) Set ACPI suspend type to S1/POS(Power On Suspend). (Default value)
- S3(STR) Set ACPI suspend type to S3/STR(Suspend To RAM).

☞ **Soft-Off by Power button**

- Instant-Off Press power button then Power off instantly. (Default value)
- Delay 4 Sec. Press power button 4 sec. to Power off. Enter suspend if button is pressed less than 4 sec.

☞ **PME Event Wake Up**

This feature requires an ATX power supply that provides at least 1A on the 5VSB lead.

- Disabled Disable this function.(Default value)
- Enabled Enable PME as wake up event.

☞ **Modem Ring On**

An incoming call via modem can awake the system from any suspend state.

- Disabled Disable this function. (Default value)
- Enabled Enable Modem Ring On function.

☞ **USB Resume from Suspend**

- Disabled Disable this function. (Default value)
- Enable Enable USB device wake up system from suspend mode.

☞ **Power-On by Alarm**

You can set "Power-On by Alarm" item to enabled and key in Date/Time to power on system.

- Disabled Disable this function. (Default value)
- Enabled Enable alarm function to POWER ON system.

If Power-On by Alarm is Enabled.

- Day of Month Alarm : Everyday, 1~31
- Time (hh: mm: ss) Alarm : (0~23) : (0~59) : (0~59)

☞ **Power On By Mouse**

- ⏩ Disabled — Disabled this function. (Default value)
- ⏩ Double Click — Double click on PS/2 mouse left button to power on the system.

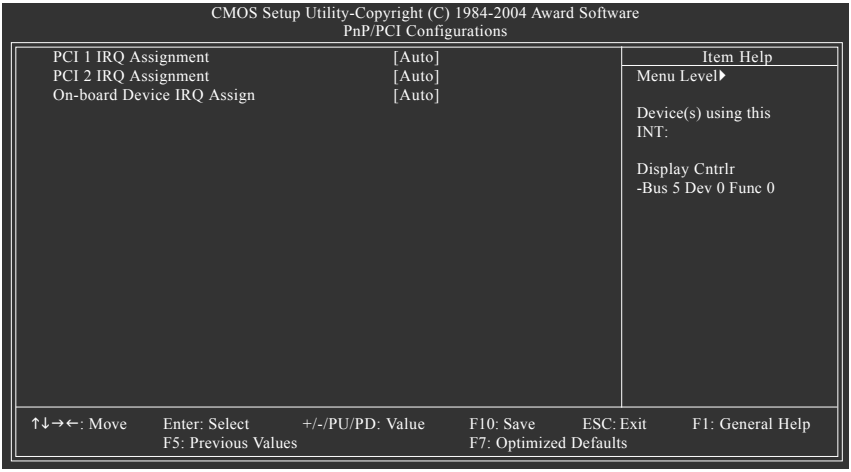
☞ **Power On By Keyboard**

- ⏩ Disabled — Disabled this function. (Default value)
- ⏩ Keyboard 98 — If your keyboard have "POWER Key" button, you can press the key to power on the system.
- ⏩ Any KEY — Press any keys on your keyboard to power on the system.

☞ **AC BACK Function**

- ⏩ Soft-Off — When AC-power back to the system, the system will be in "Off" state. (Default value)
- ⏩ Full-On — When AC-power back to the system, the system always in "On" state.

2-5 PnP/PCI Configurations



☞ **PCI 1 IRQ Assignment**

- Auto — Auto assign IRQ to PCI 1. (Default value)
- 3,4,5,7,9,10,11,12,14,15 — Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 1.

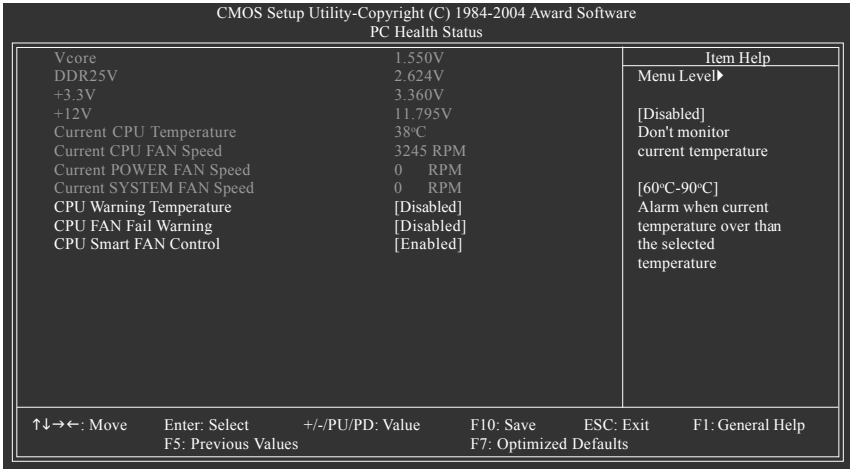
☞ **PCI 2 IRQ Assignment**

- Auto — Auto assign IRQ to PCI 2. (Default value)
- 3,4,5,7,9,10,11,12,14,15 — Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 2.

☞ **On-board Device IRQ Assign**

- Auto — Auto assign IRQ to onboard device. (Default value)
- 3,4,5,7,9,10,11,12,14,15 — Set IRQ 3,4,5,7,9,10,11,12,14,15 to onboard device.

2-6 PC Health Status



☞ **Current Voltage(V) Vcore / DDR25V / +3.3V / +12V**

⏩ Detect system's voltage status automatically.

☞ **Current CPU Temperature**

⏩ Detect CPU temperature automatically.

☞ **Current CPU/POWER/SYSTEM FAN Speed (RPM)**

⏩ Detect CPU/Power/System fan speed status automatically.

☞ **CPU Warning Temperature**

⏩ 60°C / 140°F Monitor CPU temperature at 60°C / 140°F.

⏩ 70°C / 158°F Monitor CPU temperature at 70°C / 158°F.

⏩ 80°C / 176°F Monitor CPU temperature at 80°C / 176°F.

⏩ 90°C / 194°F Monitor CPU temperature at 90°C / 194°F.

⏩ Disabled Disable this function. (Default value)

☞ **CPU FAN Fail Warning**

⏩ Disabled Disable CPU fan fail warning function. (Default value)

⏩ Enabled Enable CPU fan fail warning function.

☞ **CPU Smart FAN Control**

⏩ Disabled Disable this function.

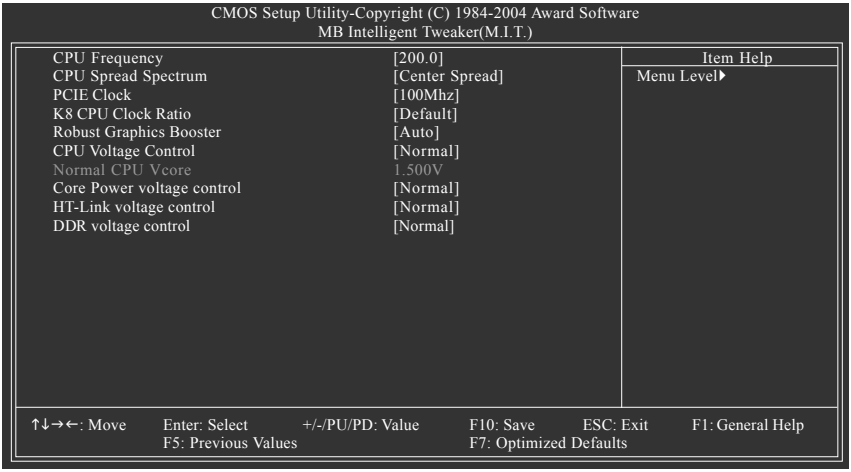
⏩ Enabled Enable CPU Smart Fan control function. (Default value)

a. When the CPU temperature is higher than 60 degrees Celsius, CPU fan will run at full speed.

b. The speed of CPU fan will increase linearly depend on the temperature if the temperature is more than 50 degree and less than 59 degree.

c. When the CPU temperature is lower than 50 degrees Celsius, CPU fan will run at low speed.

2-7 MB Intelligent Tweaker(M.I.T.)



CAUTION Incorrect using these features may cause your system broken. For power end-user use only.

☞ **CPU Frequency**

- ⏩ 200.0~400.0MHz — Set CPU Frequency from 200MHz to 400MHz.

☞ **CPU Spread Spectrum**

- ⏩ Disabled — Disable CPU Spread Spectrum.
- ⏩ Center Spread — Set CPU Spread Spectrum to Center Spread. (Default value)

☞ **PCIE Clock**

- ⏩ 100~150MHz — Set PCIE Clock from 100MHz to 150MHz.

☞ **K8 CPU Clock Ratio**

This setup option will automatically assign by CPU detection. The option will display "Locked" and read only or will not show up if the CPU ratio is not changeable.

☞ **Robust Graphics Booster**

Select the options can enhance the VGA graphics card bandwidth to get higher performance.

- ⏩ Auto — Set Robust Graphics Booster to Auto. (Default value)
- ⏩ Fast — Set Robust Graphics Booster to Fast.
- ⏩ Turbo — Set Robust Graphics Booster to Turbo.

☞ **CPU Voltage Control**

⏩ Supports adjustable CPU Vcore from 0.800V to 1.750V by 0.025V step. (Default value: Normal)
Warning: CPU may be damaged or CPU life-cycle may be reduced when CPU is over-voltage.

☞ **Normal CPU Vcore**

⏩ Display your CPU normal voltage.

☞ **Core Power voltage control**

- ⏩ Normal — Set core power voltage as required. (Default value)
- ⏩ +0.1v — Increase core power voltage +0.1V.
- ⏩ +0.2v — Increase core power voltage +0.2V.
- ⏩ +0.3v — Increase core power voltage +0.3V.

☞ **HT-Link voltage control**

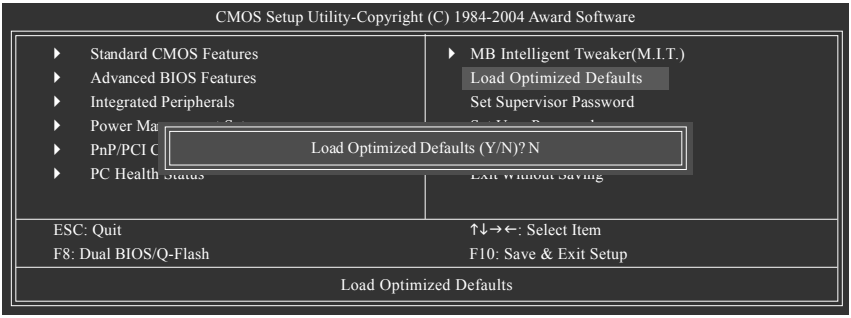
⏩ Normal	Supply HT-Link voltage as HT-Link required. (Default value)
⏩ +0.1V	Increase HT-Link voltage +0.1V.
⏩ +0.2V	Increase HT-Link voltage +0.2V.
⏩ +0.3V	Increase HT-Link voltage +0.3V.

☞ **DDR voltage control**

Please note that by overclocking your system through the increase of the DDR voltage, damage to the memory may occur.

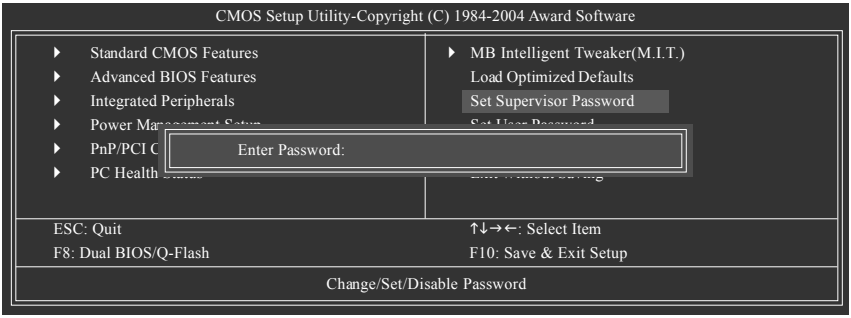
⏩ Normal	Supply DDR voltage as DDR required. (Default value)
⏩ +0.1V	Increase DDR voltage +0.1V.
⏩ +0.2V	Increase DDR voltage +0.2V.

2-8 Load Optimized Defaults



Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

2-9 Set Supervisor/User Password



When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Type the password, up to eight characters, and press <Enter>. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the

selection and not enter a password.

To disable password, just press <Enter> when you are prompted to enter password. A message "PASSWORD DISABLED" will appear to confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

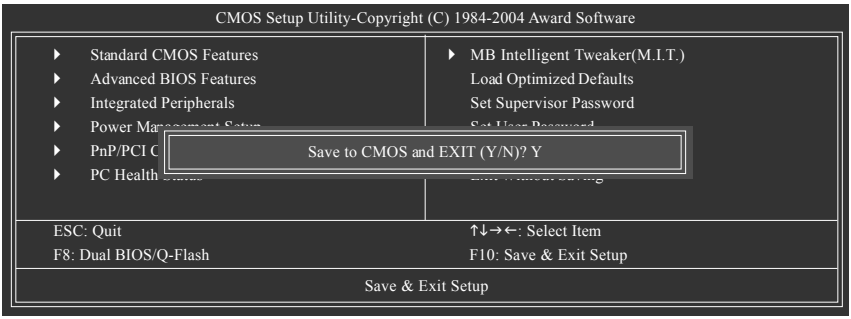
The BIOS Setup program allows you to specify two separate passwords:

SUPERVISOR PASSWORD and a USER PASSWORD. When disabled, anyone may access all BIOS Setup program function. When enabled, the Supervisor password is required for entering the BIOS Setup program and having full configuration fields, the User password is required to access only basic items.

If you select "System" at "Password Check" in Advance BIOS Features Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup Menu.

If you select "Setup" at "Password Check" in Advance BIOS Features Menu, you will be prompted only when you try to enter Setup.

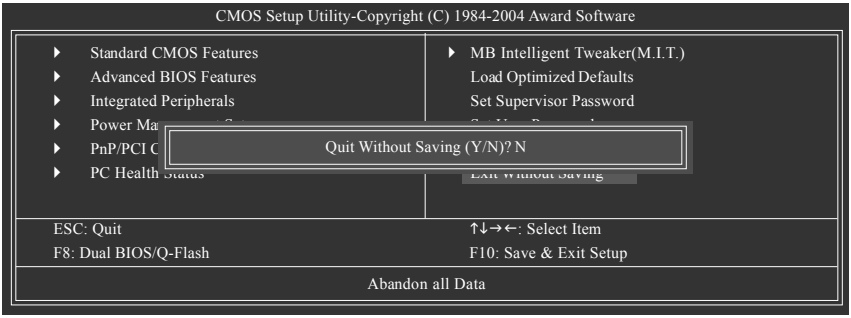
2-10 Save & Exit Setup



Type "Y" will quit the Setup Utility and save the user setup value to RTC CMOS.

Type "N" will return to Setup Utility.

2-11 Exit Without Saving



Type "Y" will quit the Setup Utility without saving to RTC CMOS.

Type "N" will return to Setup Utility.

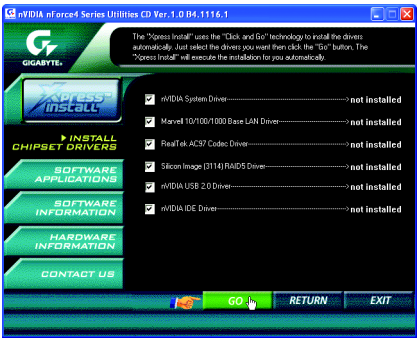
Chapter 3 Drivers Installation

NOTE

Pictures below are shown in Windows XP.
Insert the driver CD-title that came with your motherboard into your CD-ROM drive, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the Setup.exe.

3-1 Install Chipset Drivers

After insert the driver CD, "Xpress Install" will scan automatically the system and then list all the drivers that recommended to install. The "Xpress Install" uses the"Click and Go" technology to install the drivers automatically. Just select the drivers you want then click the "GO" button. The "Xpress Install" will execute the installation for you automatically.



NOTE

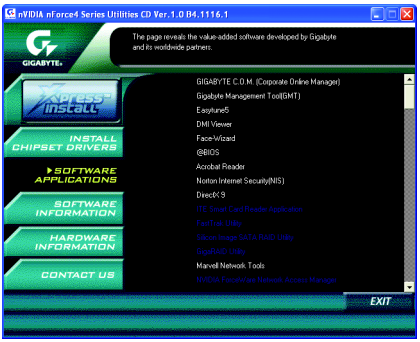
Some device drivers will restart your system automatically. After restarting your system the "Xpress Install" will continue to install other drivers.
System will reboot automatically after install the drivers, afterward you can install others application.

CAUTION

For USB2.0 driver support under Windows XP operating system, please use Windows Service Pack. After install Windows Service Pack, it will show a question mark "?" in "Universal Serial Bus controller" under "Device Manager". Please remove the question mark and restart the system (System will auto-detect the right USB2.0 driver).

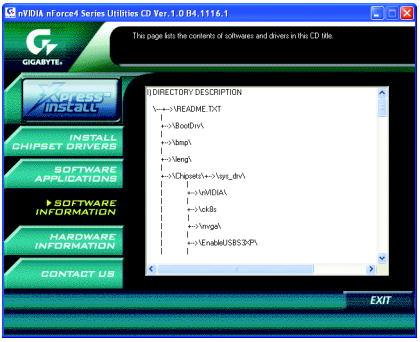
3-2 Software Application

This page displays all the tools that Gigabyte developed and some free software, you can choose anyone you want and press "install" to install them.



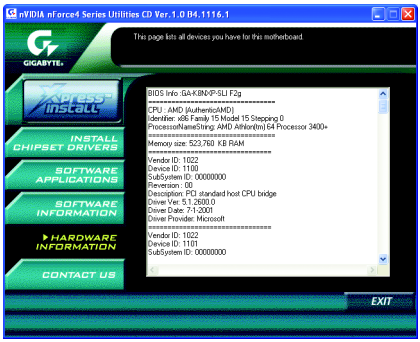
3-3 Software Information

This page lists the contents of software and drivers in this CD-title.



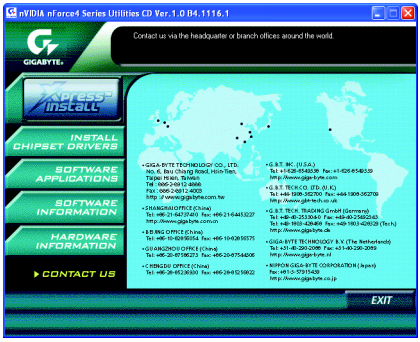
3-4 Hardware Information

This page lists all device you have for this motherboard.



3-5 Contact Us

Please see the last page for details.



3-6 Install IEEE 1394 Driver (Only for Windows XP SP2)

If you are using a Windows XP SP2-based computer, you need to install the Unibrain IEEE 1394 driver from the motherboard driver CD when you want to connect IEEE 1394 devices to your system. The steps below explain how to manually install the IEEE 1394 driver.

Step 1:
After entering operating system, insert the motherboard driver CD in the CD-ROM drive. Go to **My Computer** and right-click the CD-ROM drive icon to select **Open**. Go to the **Other** folder and select the **1394B** folder. Double-click **SETUP.exe** (Figure 1) to begin the IEEE 1394 driver installation.

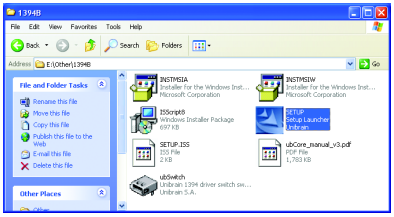


Figure 1

Step 2:
Follow the on-screen instructions to continue the driver installation (Figure 2).

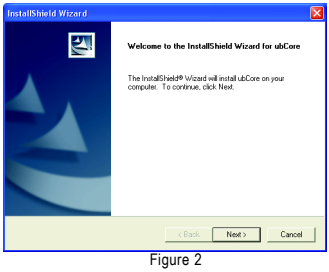


Figure 2

Step 3:
Restart your computer when the installation is completed (Figure 3).

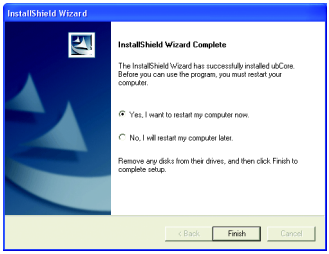


Figure 3

Step 4:
After system restarts, go to **Device Manager** and check whether the IEEE 1394 driver has been correctly installed. Under **IEEE 1394 Bus host controllers**, you should see **Gigabyte 1394b Host Controller** (Figure 4). If you see a yellow exclamation or question mark, reinstall the driver for the IEEE 1394 controller.

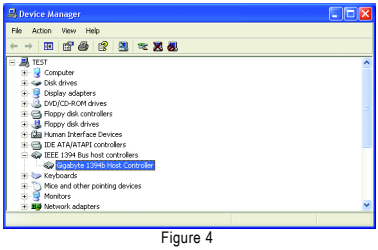


Figure 4

Switch the IEEE 1394 Driver

If you want to connect a DV camcorder or web camera to the 1394 port of your system, you must use Microsoft IEEE 1394 driver. To switch from the Unibrain driver to Microsoft driver, you can simply run the Unibrain IEEE 1394 driver switch utility from the motherboard driver CD or manually switch the driver from Device Manager.

Method A: Switch IEEE 1394 driver via Unibrain driver switch utility (Note)

Step 1:

After entering operating system, insert the motherboard driver CD in the CD-ROM drive. Go to **My Computer** and right-click the CD-ROM drive icon to select **Open**. Go to the **Other** folder and select the **1394B** folder. Double-click the **ubSwitch** icon (Figure 5) and you should see an **ubSwitch 1394 driver switch utility** icon in system tray (Figure 6).

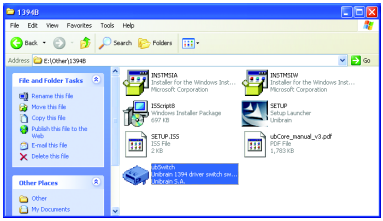


Figure 5

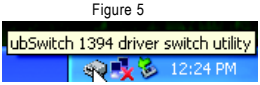


Figure 6

Step 2:

Right-click the **ubSwitch 1394 driver switch utility** icon and select **Microsoft 1394 Drivers** (Figure 7). Then the utility will switch the IEEE 1394 driver automatically. When the "MS 1394 drivers successfully installed" message appears, it means the Unibrain IEEE 1394 driver has been interchanged with Microsoft IEEE 1394 driver.

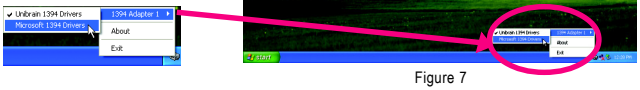


Figure 7

Step 3:

Go to **Device Manager** to make sure the driver for the IEEE 1394 controller is correctly installed (Figure 8). (When you are not using DV camcorder or web camera, remember to revert back to the Unibrain driver.)

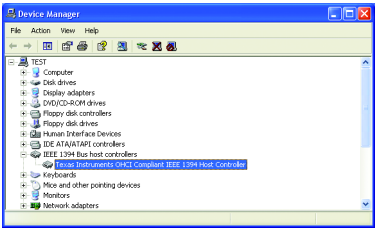


Figure 8

(Note) Everytime you need to run this utility after system restarts, you need to repeat steps 1~3.

Method B: Switch IEEE 1394 driver from Device Manager

Step 1:

Access **Device Manager** through Control Panel\System\Hardware and you should see **Gigabyte IEEE 1394b Host Controller** under **IEEE 1394 Bus host controllers**, as seen in Figure 9.

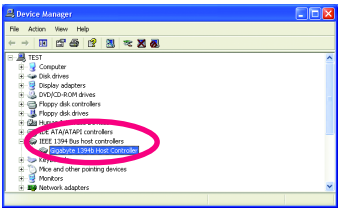


Figure 9

Step 2:

Right-click **Gigabyte 1394b Host Controller** and select **Update Driver** (Figure 10).

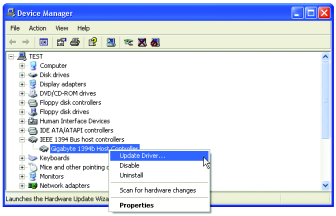


Figure 10

Step 3:

When the Hardware Update Wizard appears, select **Install from a list or specific location** and click **Next** (Figure 11).



Figure 11

Step 4:

When prompted to choose your search and installation options, select **Don't search. I will choose the driver to install** and click **Next** (Figure 12).

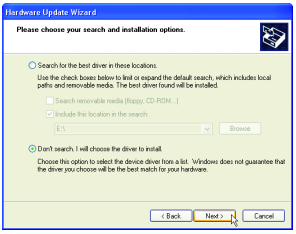


Figure 12

Step 5:

In the next window, select the Microsoft IEEE 1394 driver--**Texas Instruments OHCI Compliant IEEE 1394 Host Controller** and click **Next** (Figure 13). Then system will begin to load the Microsoft IEEE 1394 driver. When it's done, remember to go back to **Device Manager** to check whether the driver has been changed correctly. You may refer to Step 3 in Method A.

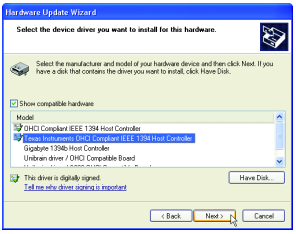


Figure 13

Chapter 4 Appendix

4-1 Unique Software Utilities

4-1-1 EasyTune 5 Introduction

EasyTune 5 presents the most convenient Windows based system performance enhancement and manageability utility. Featuring several powerful yet easy to use tools such as 1) Overclocking for enhancing system performance, 2) C.I.A. and M.I.B. for special enhancement for CPU and Memory, 3) Smart-Fan control for managing fan speed control of both CPU cooling fan and North-Bridge Chipset cooling fan, 4) PC health for monitoring system status.(Note)

User Interface Overview



	Button / Display	Description
1.	Overclocking	Enters the Overclocking setting page
2.	C.I.A./C.I.A.2 and M.I.B./M.I.B.2	Enters the C.I.A./2 and M.I.B./2 setting page
3.	Smart-Fan	Enters the Smart-Fan setting page
4.	PC Health	Enters the PC Health setting page
5.	GO	Confirmation and Execution button
6.	"Easy Mode" & "Advance Mode"	Toggles between Easy and Advance Mode
7.	Display screen	Display panel of CPU frequency
8.	Function display LEDs	Shows the current functions status
9.	GIGABYTE Logo	Log on to GIGABYTE website
10.	Help button	Display EasyTune™ 5 Help file
11.	Exit or Minimize button	Quit or Minimize EasyTune™ 5 software

(Note) EasyTune 5 functions may vary depending on different motherboards.

4-1-2 Xpress Recovery Introduction

What is Xpress Recovery ?

Xpress Recovery is a utility used to back up and restore an OS partition. If the hard drive is not working properly, the user can restore the drive to its original state.

CAUTION

1. Supports FAT16, FAT32, and NTFS formats
2. Must be connected to the IDE1 Master
3. Allows installation of only one OS
4. Must be used with an IDE hard disk supporting HPA
5. The first partition must be set as the boot partition. When the boot partition is backed up, please do not alter its size.
6. Xpress Recovery is recommended when using Ghost to return boot manager to NTFS format.

How to use the Xpress Recovery

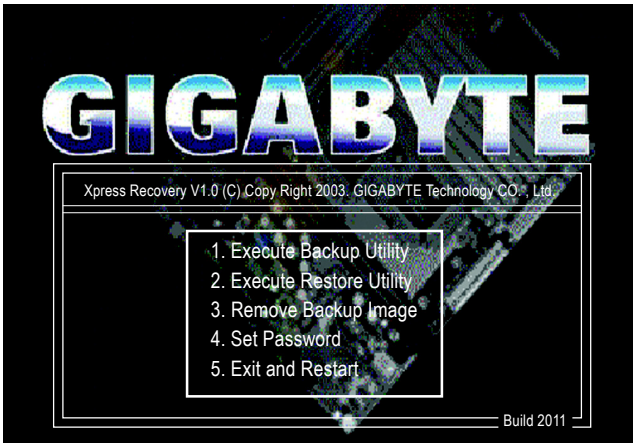
1. Boot from CD-ROM (BMP Mode)

   Enter the BIOS menu, select "Advanced BIOS Feature" and set to boot from CD-ROM. Insert the provided driver CD into your CD drive, then save and exit the BIOS menu. Once the computer has restarted, the phrase "Boot from CD:" will appear at the bottom left-hand corner of the screen. When "Boot from CD:" appears, press any key to enter Xpress Recovery.

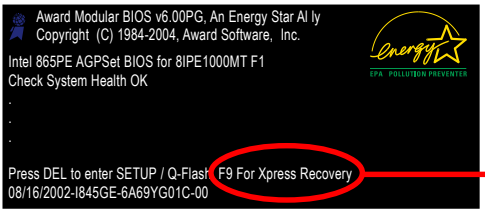
   Once you have completed this step, subsequent access to Xpress Recovery can also function by pressing the F9 key during computer power on.

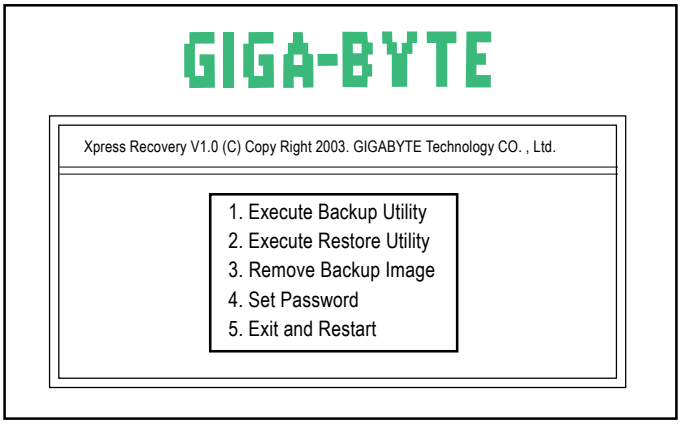


Boot from CD:



2. Press F9 during powering on the computer. (Text Mode)





NOTE

1. If you have already entered Xpress Recovery by booting from the CD-ROM, you can enter Xpress Recovery in the future by pressing the F9 key.
2. System storage capacity as well as drive reading/writing speed will affect backup speed.
3. It is recommended that Xpress Recovery be immediately installed after OS and all required driver and software installations are complete.

1. Execute Backup Utility:

Press B to Backup your System or Esc to Exit

The backup utility will automatically scan your system and back up data as a backup image in your hard drive.



Not all systems support access to Xpress Recovery by pressing the F9 key during computer power on. If this is the case, please use the boot from CD-ROM method to enter Xpress Recovery.

2. Execute Restore Utility:

This program will recover your system to factory default.

Press R to restore your system back to factory default or press Esc to exit

Restores backup image to original state.

3. Remove Backup Image:

Remove backup image. Are you sure? (Y/N)

Remove the backup image.

4. Set Password:

Please input a 4-16 character long password (a-z or 0-9) or press Esc to exit

You can set a password to enter Xpress Recovery to protect your hard disk data. Once this is done, password input will be required to enter Xpress Recovery during the next as well as subsequent system restarts. If you wish to remove the need for password entry, please select "Set Password" and under "New Password/Confirm Password", make sure there is no entry and then press "Enter" to remove password requirement.

5. Exit and Restart:

Exit and restart your computer.

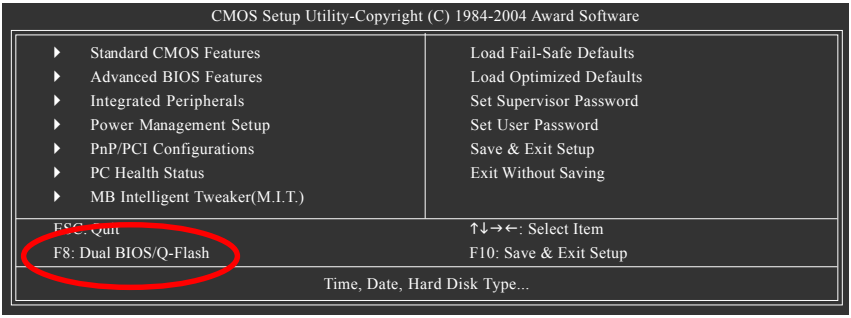
4-1-3 Flash BIOS Method Introduction

A. What is Dual BIOS Technology?

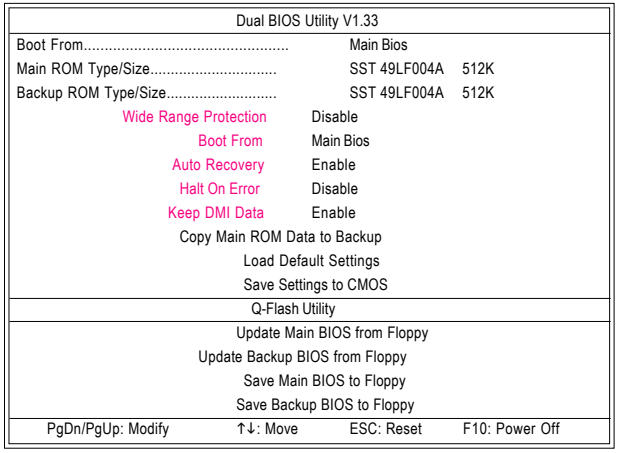
Dual BIOS means that there are two system BIOS (ROM) on the motherboard, one is the Main BIOS and the other is Backup BIOS. Under the normal circumstances, the system works on the Main BIOS. If the Main BIOS is corrupted or damaged, the Backup BIOS can take over while the system is powered on. This means that your PC will still be able to run stably as if nothing has happened in your BIOS.

B. How to use Dual BIOS and Q-Flash Utility?

a. After power on the computer, pressing <Del> immediately during POST (Power On Self Test) it will allow you to enter Award BIOS CMOS SETUP, then press <F8> to enter Flash utility.



b. Dual BIOS / Q-Flash Programming Utility



c. Dual BIOS Item explanation:

Wide Range Protection: Disable(Default), Enable

Status 1:

If any failure (ex. Update ESCD failure, checksum error or reset? occurs in the Main BIOS, just before the Operating System is loaded and after the power is on, and that the Wide Range Protection is set to "Enable", the PC will boot from Backup BIOS automatically.

Status 2:

If the ROM BIOS on peripherals cards(ex. SCSI Cards, LAN Cards,..) emits signals torequest restart of the system after the user make any alteration on it, the boot up BIOS will not be changed to the Backup BIOS.

Boot From : Main BIOS(Default), Backup BIOS

Status 1:

The user can set to boot from main BIOS or Backup BIOS.

Status 2:

If one of the main BIOS or the Backup BIOS fails, this item "Boot From : Main BIOS(Default)" will become gray and will not be changed by user.

Auto Recovery : Enable(Default), Disable

When one of the Main BIOS or Backup BIOS occurs checksum failure, the working BIOS will automatically recover the BIOS of checksum failure.

(In the Power Management Setup of the BIOS Setting, if ACPI Suspend Type is set to Suspend to RAM, the Auto Recovery will be set to Enable automatically.)

(If you want to enter the BIOS setting, please press "Del" key when the boot screen appears.)

Halt On Error : Disable(Default), Enable

If the BIOS occurs a checksum error or the Main BIOS occurs a WIDE RANGE PROTECTION error and Halt On Error set to Enable, the PC will show messages on the boot screen, and the system will pause and wait for the user's instruction.

If Auto Recovery :Disable, it will show <or the other key to continue.>

If Auto Recovery :Enable, it will show <or the other key to Auto Recover.>

Keep DMI Data : Enable(Default), Disable

Enable: The DMI data won't be replaced by flashing new BIOS.(recommend)

Disable: The DMI data will be replaced by flashing new BIOS.

Copy Main ROM Data to Backup

(If you boot from Backup ROM, this item will change to Copy Backup ROM Data to Main)

Auto recovery message:

BIOS Recovery: Main to Backup

The means that the Main BIOS works normally and could automatically recover the Backup BIOS.

BIOS Recovery: Backup to Main

The means that the Backup BIOS works normally and could automatically recover the Main BIOS.

(This auto recovery utility is set by system automatically and can't be changed by user.)

Load Default Settings

Load dual BIOS default value.

Save Settings to CMOS

Save revised setting.

Method 1 : Q-Flash™ Utility

Q-Flash™ is a BIOS flash utility embedded in Flash ROM. With this utility, users only have to stay in the BIOS menu when they want to update BIOS. Q-Flash™ allows users to flash BIOS without any utility in DOS or Windows. Using Q-Flash™ indicating no more fooling around with any complicated instructions and operating system since it is in the BIOS menu.

CAUTION

Please note that because updating BIOS has potential risk, please do it with caution!! We are sorry that Gigabyte Technology Co., Ltd is not responsible for damages of system because of incorrect manipulation of updating BIOS to avoid any claims from end-users.

Before You Begin:

Before you start updating BIOS with the Q-Flash™ utility, please follow the steps below first.

1. Download the latest BIOS for your motherboard from Gigabyte's website.
2. Extract the BIOS file downloaded and save the BIOS file (the one with model name.Fxx. For example, 8KNXPU.Fba) to a floppy disk.
3. Reboot your PC and press **Del** to enter BIOS menu.

The BIOS upgrading guides below are separated into two parts.
If your motherboard has dual-BIOS, please refer to **Part One**.
If your motherboard has single-BIOS, please refer to **Part Two**.

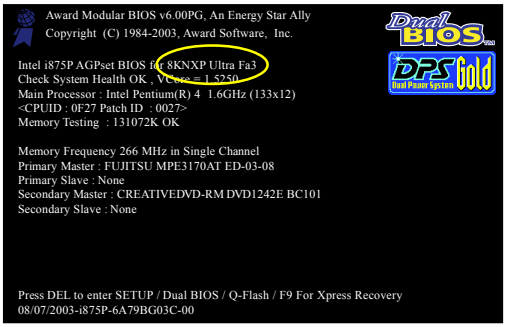
Part One:

Updating BIOS with Q-Flash™ Utility on Dual BIOS Motherboards.

Some of Gigabyte motherboards are equipped with dual BIOS. In the BIOS menu of the motherboards supporting Q-Flash and Dual BIOS, the Q-Flash utility and Dual BIOS utility are combined in the same screen. This section only deals with how to use Q-Flash utility.

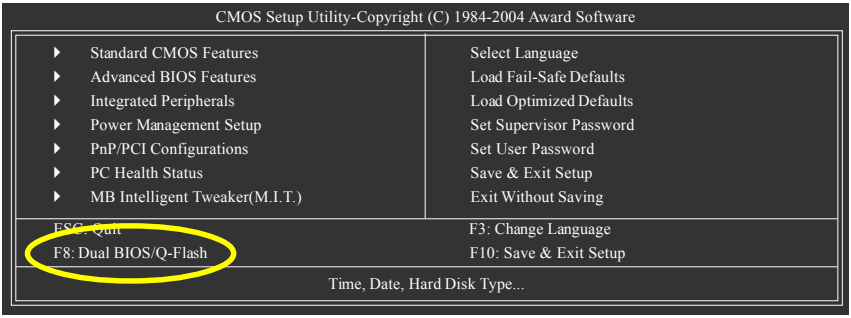
In the following sections, we take GA-8KNXP Ultra as the example to guide you how to flash BIOS from an older version to the latest version. For example, from Fa3 to Fba.

The BIOS file is Fa3 before updating



Entering the Q-Flash™ utility:

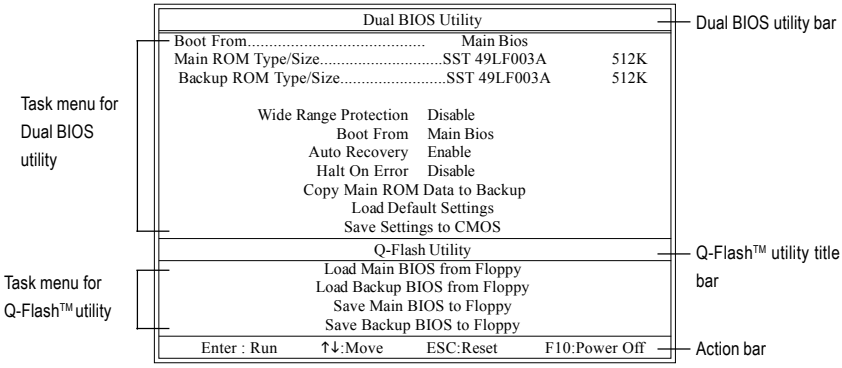
Step1: To use Q-Flash utility, you must press **Del** in the boot screen to enter BIOS menu.



Step 2: Press **F8** button on your keyboard and then **Y** button to enter the Dual BIOS/Q-Flash utility.

Exploring the Q-Flash™ / Dual BIOS utility screen

The Q-Flash / Dual BIOS utility screen consists of the following key components.



Task menu for Dual BIOS utility:

Contains the names of eight tasks and two item showing information about the BIOS ROM type. Blocking a task and pressing Enter key on your keyboard to enable execution of the task.

Task menu for Q-Flash utility:

Contains the names of four tasks. Blocking a task and pressing Enter key on your keyboard to enable execution of the task.

Action bar:

Contains the names of four actions needed to operate the Q-Flash/Dual BIOS utility. Pressing the buttons mentioned on your keyboards to perform these actions.

Using the Q-Flash™ utility:

This section tells you how to update BIOS using the Q-Flash utility. As described in the "Before you begin" section above, you must prepare a floppy disk having the BIOS file for your motherboard and insert it to your computer. If you have already put the floppy disk into your system and have entered the Q-Flash utility, please follow the steps below to flash BIOS.

Steps:

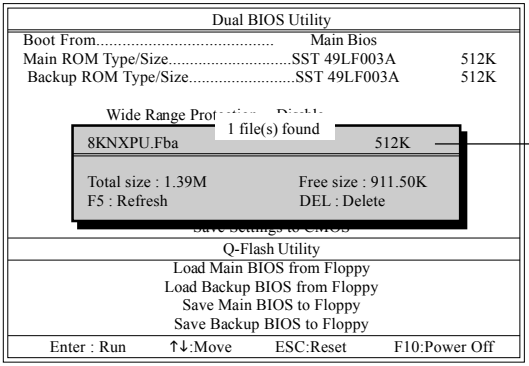
1. Press arrow buttons on your keyboard to move the light bar to "Load Main BIOS from Floppy" item in the Q-Flash menu and press Enter button.
   Later, you will see a box pop up showing the BIOS files you previously downloaded to the floppy disk.

NOTE If you want to save the current BIOS for backup purpose, you can begin Step 1 with "Save Main BIOS to Floppy" item.

2. Move to the BIOS file you want to flash and press **Enter**.

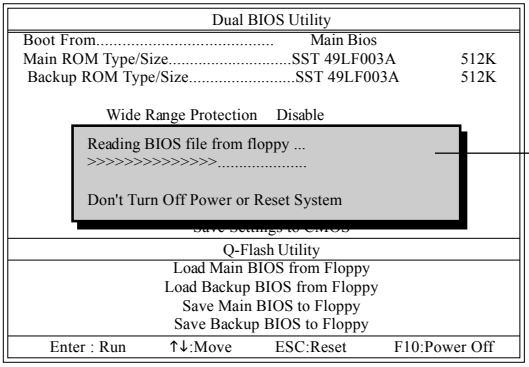
In this example, we only download one BIOS file to the floppy disk so only one BIOS file, 8KNXPU.Fba, is listed.

CAUTION Please confirm again you have the correct BIOS file for your motherboard.



BIOS file in the floppy disk.

After pressing **Enter**, you'll then see the progress of reading the BIOS file from the floppy disk.



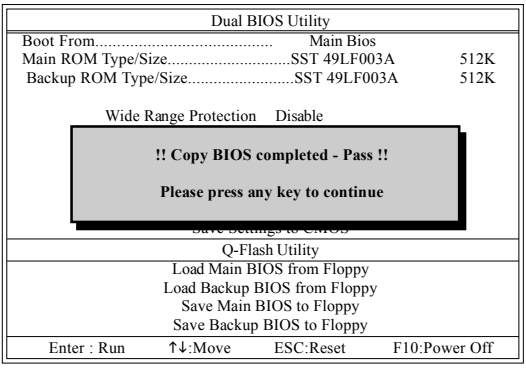
CAUTION Do not trun off power or reset your system at this stage!!

After BIOS file is read, you'll see a confirmation dialog box asking you "Are you sure to update BIOS?"

3. Press Y button on your keyboard after you are sure to update BIOS.
   Then it will begin to update BIOS. The progress of updating BIOS will be displayed.

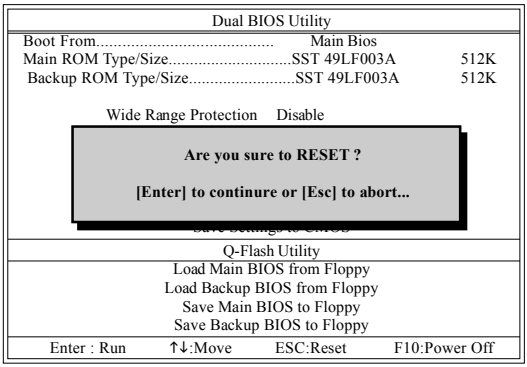
CAUTION Please do not take out the floppy disk when it begins flashing BIOS.

4. Press any keys to return to the Q-Flash menu when the BIOS updating procedure is completed.



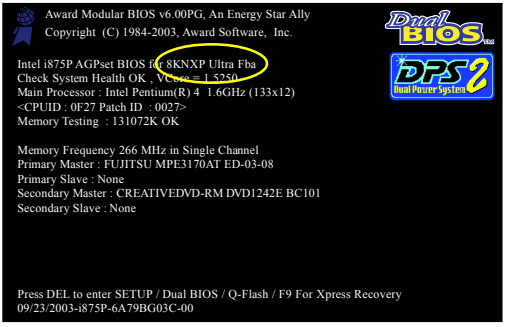
NOTE You can repeat Step 1 to 4 to flash the backup BIOS, too.

5. Press Esc and then Y button to exit the Q-Flash utility. The computer will restart automatically after you exit Q-Flash.

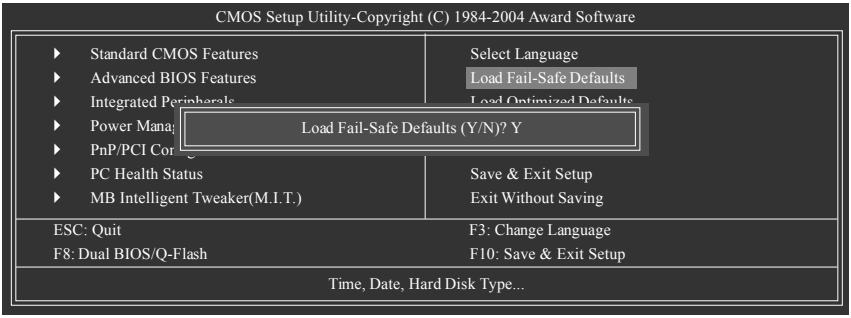


After system reboots, you may find the BIOS version on your boot screen becomes the one you flashed.

The BIOS file becomes Fba after updating.

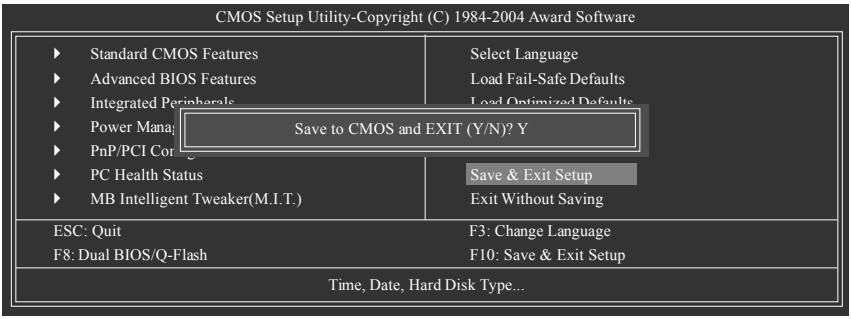


6. Press **Del** to enter BIOS menu after system reboots. When you are in BIOS menu, move to **Load Fail-Safe Defaults** item and press **Enter** to load BIOS Fail-Safe Defaults. Normally the system redetects all devices after BIOS has been upgraded. Therefore, we highly recommend reloading the BIOS defaults after BIOS has been upgraded.



Press **Y** on your keyboard to load defaults.

7. Select **Save & Exit Setup** item to save the settings to CMOS and exit the BIOS menu. System will reboot after you exit the BIOS menu. The procedure is completed.

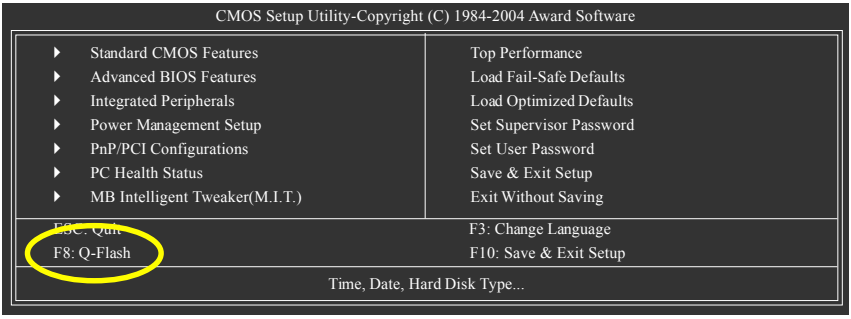


Press **Y** on your keyboard to save and exit.

Part Two:

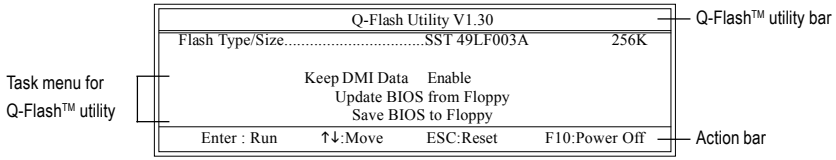
Updating BIOS with Q-Flash™ Utility on Single-BIOS Motherboards.

This part guides users of single-BIOS motherboards how to update BIOS using the Q-Flash™ utility.



Exploring the Q-Flash™ utility screen

The Q-FlashBIOS utility screen consists of the following key components.



Task menu for Q-Flash utility:

Contains the names of three tasks. Blocking a task and pressing Enter key on your keyboard to enable execution of the task.

Action bar:

Contains the names of four actions needed to operate the Q-Flash utility. Pressing the buttons mentioned on your keyboards to perform these actions.

Using the Q-Flash™ utility:

This section tells you how to update BIOS using the Q-Flash utility. As described in the "Before you begin" section above, you must prepare a floppy disk having the BIOS file for your motherboard and insert it to your computer. If you have already put the floppy disk into your system and have entered the Q-Flash utility, please follow the steps below to flash BIOS.

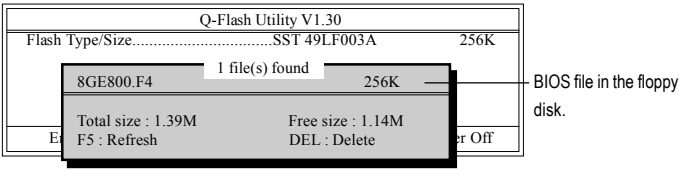
Steps:

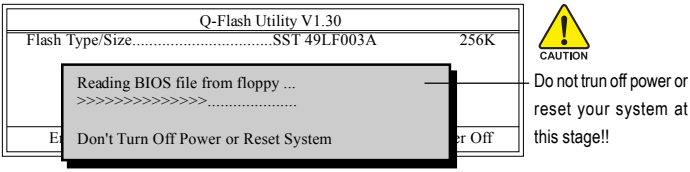
1. Press arrow buttons on your keyboard to move the light bar to "Update BIOS from Floppy" item in the Q-Flash menu and press Enter button.
   Later, you will see a box pop up showing the BIOS files you previously downloaded to the floppy disk.

NOTE If you want to save the current BIOS for backup purpose, you can begin Step 1 with "Save BIOS to Floppy" item.

2. Move to the BIOS file you want to flash and press Enter.
   In this example, we only download one BIOS file to the floppy disk so only one BIOS file, 8GE800.F4, is listed.

CAUTION Please confirm again you have the correct BIOS file for your motherboard.

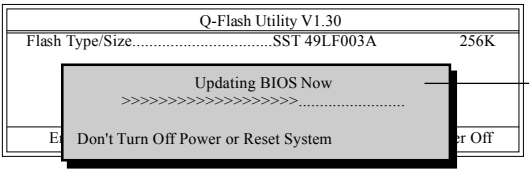




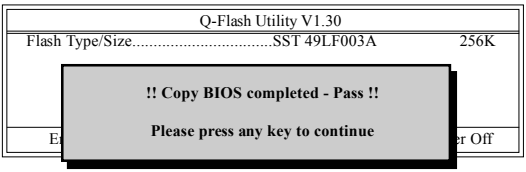
After BIOS file is read, you'll see a confirmation dialog box asking you "Are you sure to update BIOS?"

CAUTION Please do not take out the floppy disk when it begins flashing BIOS.

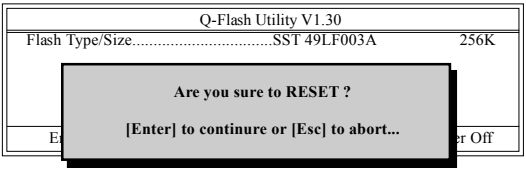
3. Press Y button on your keyboard after you are sure to update BIOS.
   Then it will begin to update BIOS. The progress of updating BIOS will be shown at the same time.



4. Press any keys to return to the Q-Flash menu when the BIOS updating procedure is completed.

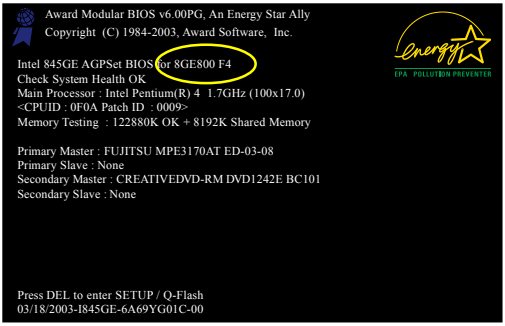


5. Press Esc and then Y button to exit the Q-Flash utility. The computer will restart automatically after you exit Q-Flash.



After system reboots, you may find the BIOS version on your boot screen becomes the one you flashed.

The BIOS file becomes F4 after updating



6. Press Del to enter BIOS menu after system reboots and "Load BIOS Fail-Safe Defaults". See how to Load BIOS Fail-Safe Defaults, please kindly refer to Step 6 to 7 in **Part One**.

Congratulation!! You have updated BIOS successfully!!

Method 2 : @BIOS™ Utility

If you do not have a DOS startup disk, we recommend that you use the new @BIOS utility. @BIOS allows users to update their BIOS under Windows. Just select the desired @BIOS server to download the latest version of BIOS.

Fig 1. Installing the @BIOS utility

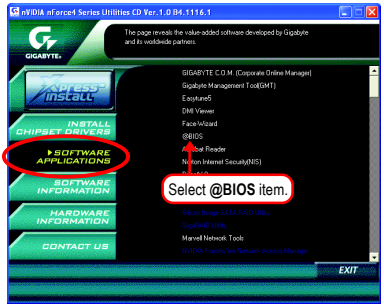


Fig 2. Installation complete and run @BIOS

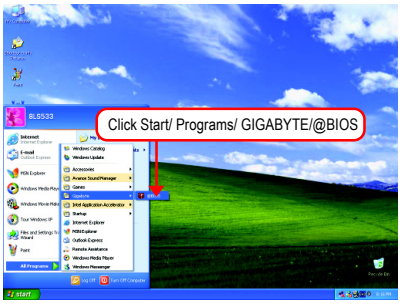


Fig 3. The @BIOS utility

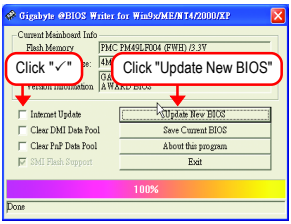
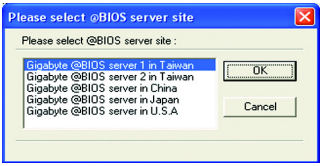


Fig 4. Select the desired @BIOS server



1. Methods and steps:

I. Update BIOS through Internet:

a. Click "Internet Update" icon.
b. Click "Update New BIOS" icon.
c. Select @BIOS™ sever.
d. Select the exact model name on your motherboard.
e. System will automatically download and update the BIOS.

II. Update BIOS NOT through Internet:

a. Do not click "Internet Update" icon.
b. Click "Update New BIOS".
c. Please select "All Files" in dialog box while opening the old file.
d. Please search for BIOS unzip file, downloading from internet or any other methods (such as: K8NS939.D2).
e. Complete update process following the instruction.

III. Save BIOS:
In the very beginning, there is "Save Current BIOS" icon shown in dialog box. It means to save the current BIOS version.

IV. Check out supported motherboard and Flash ROM:
In the very beginning, there is "About this program" icon shown in dialog box. It can help you check out which kind of motherboard and which brand of Flash ROM are supported.

2. Note:

I. In method I, if it shows two or more motherboard's model names to be selected, please make sure your motherboard's model name again. Selecting wrong model name will cause the system unbooted.
II. In method II, be sure that motherboard's model name in BIOS unzip file are the same as your motherboard's. Otherwise, your system won't boot.
III. In method I, if the BIOS file you need cannot be found in @BIOS™ server, please go onto Gigabyte's website for downloading and updating it according to method II.
IV. Please note that any interruption during updating will cause system unbooted.

4-1-4 Serial ATA BIOS Setting Utility Introduction

RAID Levels

RAID (Redundant Array of Independent Disks) is a method of combining two hard disk drives into one logical unit. The advantage of an Array is to provide better performance or data fault tolerance. Fault tolerance is achieved through data redundant operation, where if one drives fails, a mirrored copy of the data can be found on another drive. This can prevent data loss if the operating system fails or hangs. The individual disk drives in an array are called members. The configuration information of each member is recorded in the reserved sector that identifies the drive as a member. All disk members in a formed disk array are recognized as a single physical drive to the operating system.

Hard disk drives can be combined together through a few different methods. The different methods are referred to as different RAID levels. Different RAID levels represent different performance levels, security levels and implementation costs. The RAID levels which the nVIDIA® nForce4 SLI chipset supports are RAID 0, RAID 1, RAID 0+RAID 1 and JBOD.

RAID 0 (Striping)

RAID 0 reads and writes sectors of data interleaved between multiple drives. If any disk member fails, it affects the entire array. The disk array data capacity is equal to the number of drive members times the capacity of the smallest member. The striping block size can be set from 4KB to 128KB. RAID 0 does not support fault tolerance.

RAID 1 (Mirroring)

RAID 1 writes duplicate data onto a pair of drives and reads both sets of data in parallel. If one of the mirrored drives suffers a mechanical failure or does not respond, the remaining drive will continue to function. Due to redundancy, the drive capacity of the array is the capacity of the smallest drive. Under a RAID 1 setup, an extra drive called the spare drive can be attached. Such a drive will be activated to replace a failed drive that is part of a mirrored array. Due to the fault tolerance, if any RAID 1 drive fails, data access will not be affected as long as there are other working drives in the array.

RAID 0+1 (Striping + Mirroring)

RAID 0+1 combines the performance of data striping (RAID 0) and the fault tolerance of disk mirroring (RAID 1). Data is striped across multiple drives and duplicated on another set of drives.

JBOD (Spanning)

A spanning disk array is equal to the sum of the all drives when the drives used are having different capacities. Spanning stores data onto a drive until it is full, then proceeds to store files onto the next drive in the array. When any disk member fails, the failure affects the entire array. JBOD is not really a RAID and does not support fault tolerance.

Please follow the steps below to construct a complete RAID array:

1) Have ready your hard drives for RAID construction.
   Note: To achieve best performance, it is recommended that the hard drives used are of similar make and storage capacity.
2) Please attach the hard drive connectors to their appropriate location on the motherboard ie. IDE, SCSI, or SATA.
3) Enter the motherboard BIOS and locate RAID setup (Please refer to the section on Integrated Peripherals).
4) Enter RAID setup in the BIOS and select the RAID type (For instance, enter F10 to select NVIDIA RAID; Ctrl + S to select Silicon Image).
5) Complete driver installation.
6) Complete RAID utility installation.

More information on steps 4 and 5 is provided. (For more detailed setup information, please visit "Support\ Motherboard\ Technology Guide section" on our website at http:\\www.gigabyte.com.tw to read or download the information you need.)

Configuring the Nvidia RAID BIOS

The NVRAID BIOS setup lets you choose the RAID array type and which hard drives you want to make part of the array.

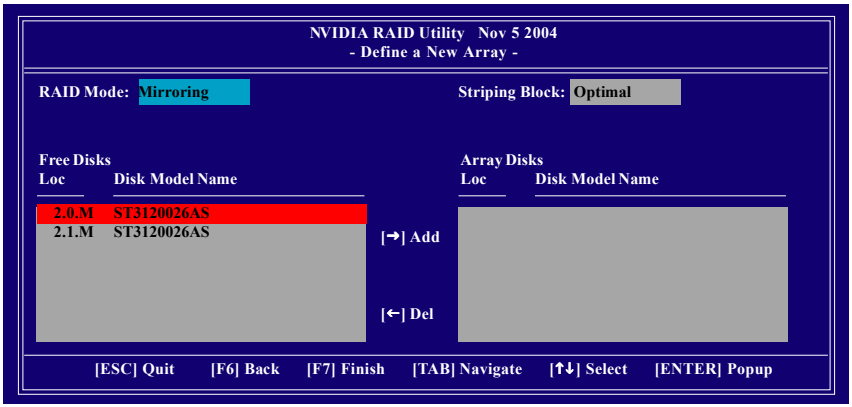
Entering the RAID BIOS Setup

1. After rebooting your computer, wait until you see the RAID software prompting you to press **F10**. The RAID prompt appears as part of the system POST and boot process prior to loading the OS. You have a few seconds to press **F10** before the window disappears.



Press **F10**.

The NVIDIA RAID Utility - **Define a New Array** window appears (as Figure below).



Using the "Define a New Array" Window

If necessary, press the tab key to move from field to field until the appropriate field is highlighted.

Selecting the RAID Mode

By default, this is set to Mirroring. To change to a different RAID mode, press the down arrow key until the mode that you want appears in the RAID Mode box - either Mirroring, Striping, Spanning, or Stripe Mirroring.

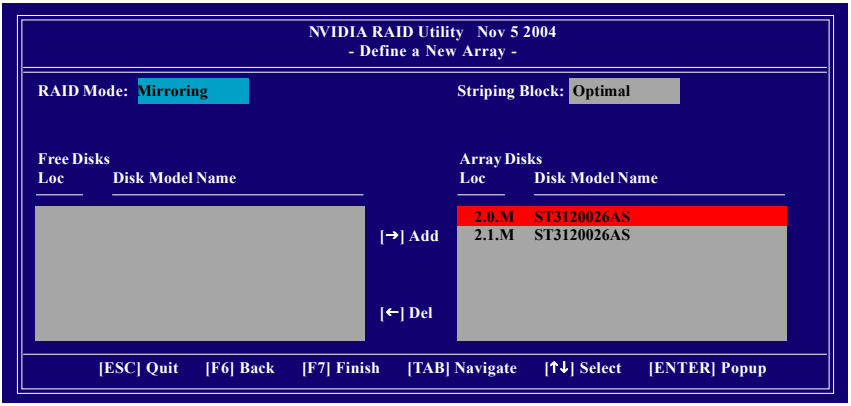
Selecting the Striping Block Size

Striping block size is given in kilobytes, and affects how data is arranged on the disk. It is recommended to leave this value at the default Optimal, which is 64KB, but the values can be between 4 KB and 128 KB.

Assigning the Disks

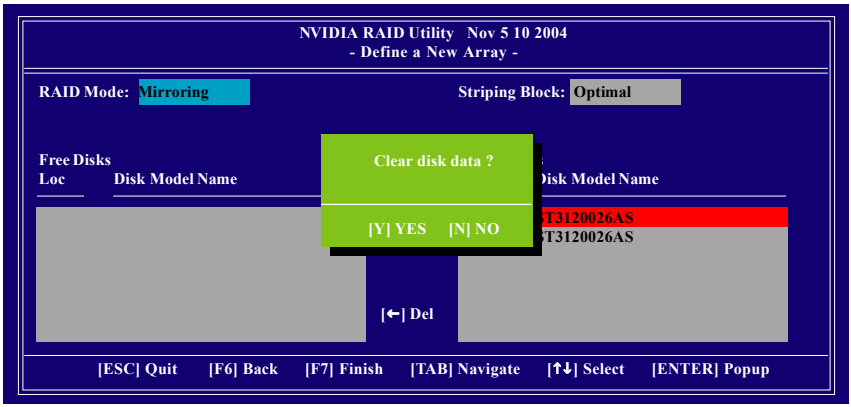
The disks that you enabled from the RAID Config BIOS setup page appear in the Free Disks block. These are the drives that are available for use as RAID array disks. To designate a free disk to be used as a RAID array disk,

1. Tab to the Free Disks section. The first disk in the list is selected.
2. Move it from the Free Disks block to the Array Disks block by pressing the right arrow key (→). The first disk in the list is moved, and the next disk in the list is selected and ready to be moved.
3. Continue pressing the right-arrow key (→) until all the disks that you want to use as RAID array disks appear in the Array Disks block.



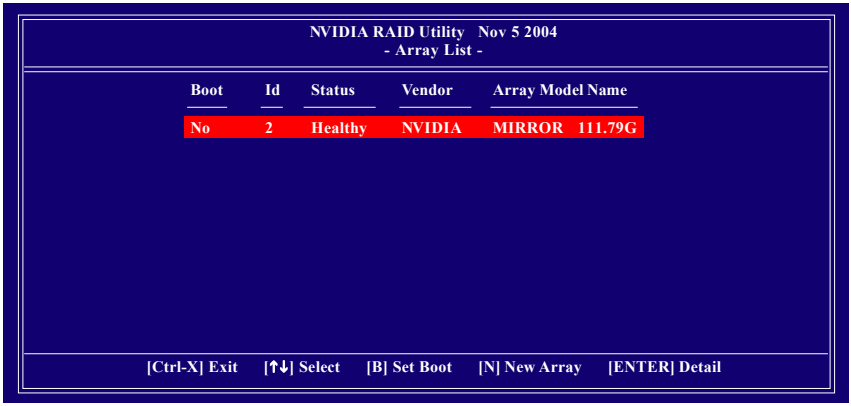
Completing the RAID BIOS Setup

After assigning your RAID array disks, press F7. The **Clear disk data** prompt appears.

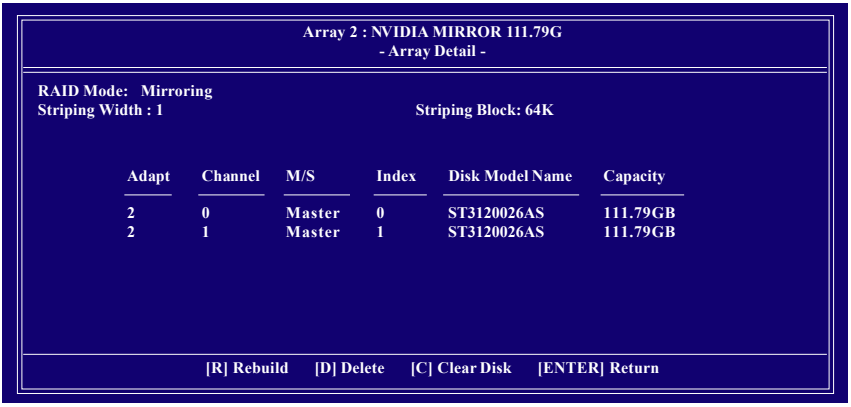


Press **Y** if you want to wipe out all the data from the RAID array, otherwise press **N**. You must choose **Yes** if the drives were previously used as RAID drives. The **Array List** window appears, where you can review the RAID arrays that you have set up.

You can select a disk array as boot device if you want to boot operating system from an array. Use the arrow keys to select the array, then press **B** to specify the array as bootable.



Press **Enter** to view and verify details. The **Array Detail** screen appears.
The Array Detail screen shows various information about the array that you selected, such as Striping Block used, RAID Mode, Striping Width, Disk Model Name, and disk capacity.



If you want to mark this disk as empty and wipe out all its contents, press **C**.
At the prompt, press **Y** to wipe out all the data, otherwise press **N**.
Press **Enter** again to go back to the previous screen and then press **Ctrl + X** to exit the RAID setup.

Now that the RAID setup has been configured from the RAID BIOS, the next step is to configure and load drivers under Windows.

Installing the RAID drivers

To install operating system onto a serial ATA hard disk successfully, you need to install the SATA controller driver during OS installation. Without the driver, the hard disk may not be recognized during the Windows setup process. First of all, copy the driver for the SATA controller from the motherboard driver CD-ROM to a floppy disk. See the instructions below about how to copy the driver in MS-DOS mode(Note1). Prepare a startup disk that has CD-ROM support and a blank formatted floppy disk.

Step 1: Insert the prepared startup disk and motherboard driver CD-ROM in your system. Boot from the startup disk. Once at the A:\> prompt, change to the CD-ROM drive (example: D:\>). At the D:\> prompt, type the following two commands. Press ENTER after each command (Fig.1):

```
cd bootdrv
menu
```

Step 2: When the controller menu (Fig.2) appears, remove the startup disk and insert the blank formatted disk. Select the controller driver by pressing the corresponding letter from the menu(Note2). Your system will then automatically zip and transfer this driver file to the floppy disk. Press 0 to exit when finished.

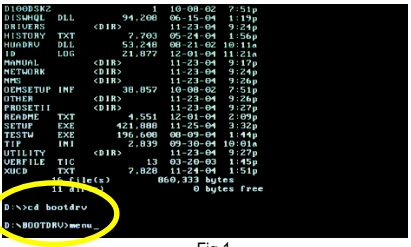


Fig.1

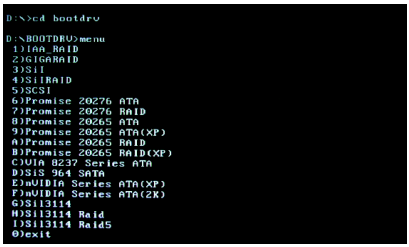


Fig.2

Step 3: After completing the steps, boot from the Windows installation disk to install the RAID drivers. Press **F6** as soon as you see the "Press F6 if you need to install a third party SCSI or RAID driver" message, then supply serial ATA controller driver by this floppy disk. Follow the on-screen instructions to complete the installation.

(Each time you add a new hard drive to a RAID array, the RAID driver will have to be installed under Windows once for that hard drive. After that, the driver will not have to be installed.)

NOTE

(Note 1): For users without a startup disk.
Use an alternative system and insert the GIGABYTE motherboard driver CD-ROM. From the CD-ROM drive (example: D:\) double click the **MENU.exe** file in the **BootDrv** folder. A command prompt window will open similar to that in Fig. 2.
(Note 2): If you wish to install operating system to SATA hard disks on the Sil3114 controller, you must select the **Sil3114 Raid5** item. Please refer to the provided Sil3114 SATA RAID (RAID 5) function manual for detailed information about Sil3114 SATA RAID configuration.

4-1-5 2- / 4- / 6- / 8- Channel Audio Function Introduction

Introduction of audio connectors:

You may connect CD-ROM/DVD-ROM, walkman or others audio input to Line In.
The front channels or earphone can be connected to Line Out (Front Speaker Out).
Connect microphone to Mic In.
Connect the Center/Subwoofer channels to Center/Subwoofer Speaker Out.
Connect the rear channels to Rear Speaker Out.
Connect the side channels to Side Speaker Out.

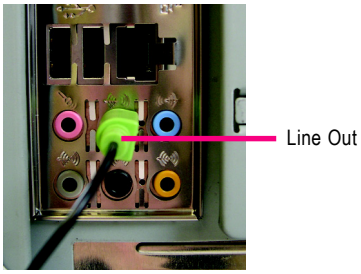


The installation of audio software is very simple. Please follow the steps to install the function. (Following pictures are in Windows XP)

Stereo Speakers Connection and Settings:

We recommend that you use the speaker with amplifier to acquire the best sound effect if the stereo output is applied.

STEP 1:
Connect the stereo speakers or earphone to "Line Out".



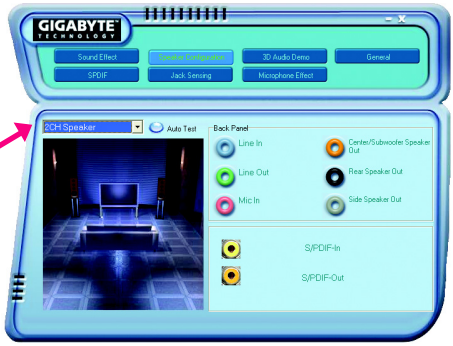
STEP 2 :
Following installation of the audio driver, you find a Sound Effect icon on the lower right hand taskbar. Click the icon to select the function.





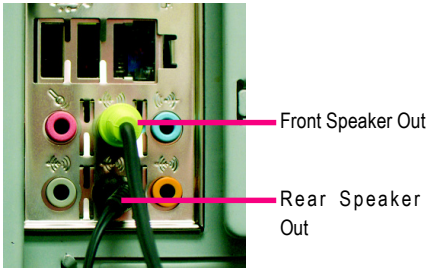
STEP 3:
Click "Speaker Configuration" then click on the left selection bar and select "2CH Speaker" to complete 2 channel audio configuration.





4 Channel Audio Setup

STEP 1 :
Connect the front channels to "Front Speaker Out", the rear channels to "Rear Speaker Out".

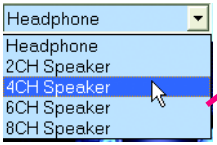


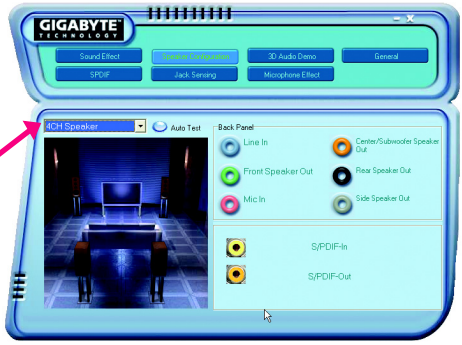
STEP 2 :
Following installation of the audio driver, you find a Sound Effect icon on the lower right hand taskbar. Click the icon to select the function.





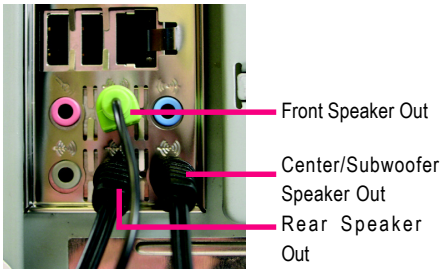
STEP 3:
Click "Speaker Configuration" then click on the left selection bar and select "4CH Speaker" to complete 4 channel audio configuration.





6 Channel Audio Setup

STEP 1 :
Connect the front channels to "Front Speaker Out", the rear channels to "Rear Speaker Out", and the Center/Subwoofer channels to "Center/Subwoofer Speaker Out".

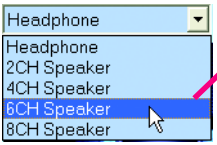


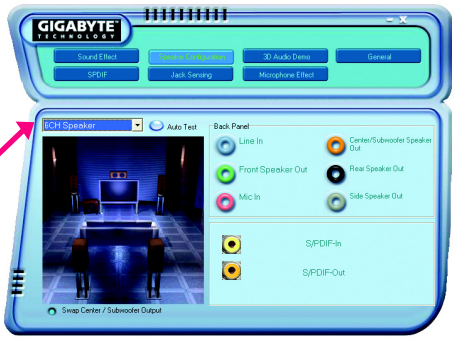
STEP 2 :
Following installation of the audio driver, you find a Sound Effect icon on the lower right hand taskbar. Click the icon to select the function.





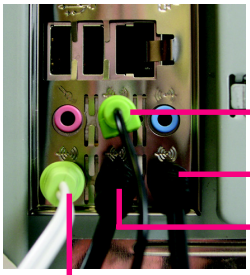
STEP 3:
Click "Speaker Configuration" then click on the left selection bar and select "6CH Speaker" to complete 6 channel audio configuration.





8 Channel Audio Setup

STEP 1 :
Connect the front channels to "Front Speaker Out", the rear channels to "Rear Speaker Out", the Center/Subwoofer channels to "Center/Subwoofer Speaker Out", and the side channels to "Side Speaker Out".



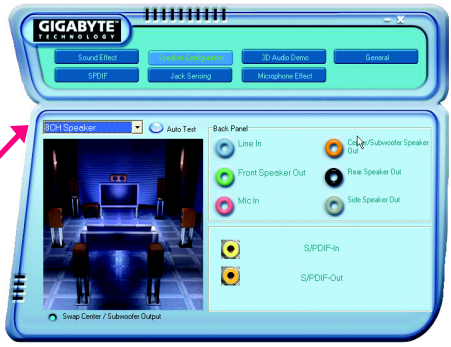
STEP 2 :
Following installation of the audio driver, you find a Sound Effect icon on the lower right hand taskbar. Click the icon to select the function.





STEP 3:
Click "Speaker Configuration" then click on the left selection bar and select "8CH Speaker" to complete 8 channel audio configuration.





Sound Effect Configuration:
At the sound effect menu, users can adjust sound option settings as desired.



Jack-Sensing Introduction

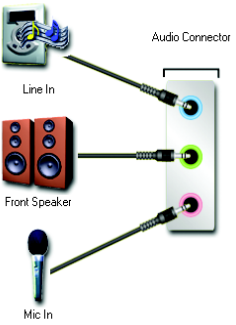
Jack-Sensing provides audio connectors error-detection function.

NOTE Install Microsoft DirectX8.1 or later version before to enable Jack-Sensing support for Windows 98/ 98SE/ 2000/ ME.

Jack-Sensing includes 2 parts: AUTO and MANUAL. Following is an example for 2 channels (Following pictures are in Windows XP):

Introduction of audio connectors

You may connect CDROM, Walkman or others audio input devices to Line In jack, speakers, earphone or others output devices to Line Out jack, and microphone to MIC In jack.



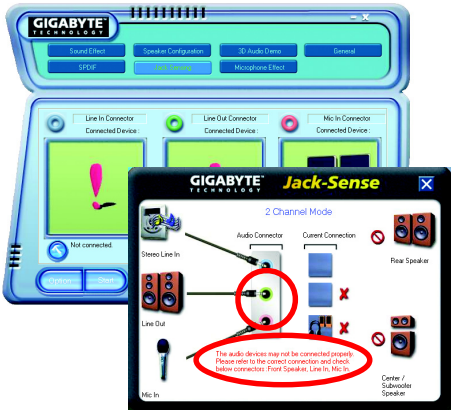
Auto-detecting:

Please connect the devices to the right jacks as above. A window will appear as right picture if you setup the devices properly.

Please note that 3D audio function will only appear when 3D audio inputs.

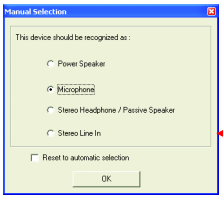


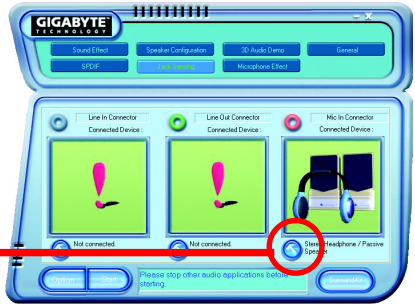
If you set wrong with the connectors, the warning message will come out as right picture.



Manual setting:

If the device picture shows different from what you set, please press "Manual Selection" to set.





4-2 Troubleshooting

Below is a collection of general asked questions. To check general asked questions based on a specific motherboard model, please go to the FAQ section on GIGABYTE's website.

Question 1: I cannot see some options that were included in previous BIOS after updating BIOS. Why?
Answer: Some advanced options are hidden in new BIOS version. Please press Ctrl and F1 keys after entering BIOS menu and you will be able to see these options.

Questions 2: Why is the light of my keyboard/optical mouse still on after computer shuts down?
Answer: In some boards, a small amount of electricity is kept on standby after computer shuts down and that's why the light is still on.

Question 3: Why cannot I use all functions in EasyTune 4?
Answer: The availability of the listed functions in EasyTune 4 depends on the MB chipset. If the chipset doesn't support certain functions in EasyTune 4, these functions will be locked automatically and you will not be able to use them.

Question 4: Why do I fail to install RAID and ATA drivers under Win 2000 and XP on boards that support RAID function after I connect the boot HDD to IDE3 or IDE4 ?
Answer: First of all, you need to save some files in the CD-ROM to a floppy disk before installing drivers. You also need to go through some rather different steps in the installation process. Therefore, we suggest that you refer to the installation steps in the RAID manual at our website.

Question 5: How do I clear CMOS?
Answer: If your board has a Clear CMOS jumper, please refer to the Clear CMOS steps in the manual. If your board doesn't have such jumper, you can take off the on-board battery to leak voltage to clear CMOS. Please refer to the steps below:

Steps:

1. Turn off power.
2. Disconnect the power cord from MB.
3. Take out the battery gently and put it aside for about 10 minutes (Or you can use a metal object to connect the positive and negative pins in the battery holder to makethem short for one minute).
4. Re-insert the battery to the battery holder.
5. Connect power cord to MB again and turn on power.
6. Press Del to enter BIOS and load Fail-Safe Defaults.
7. Save changes and reboot the system.

Question 6: Why does system seem unstable after updating BIOS?
Answer: Please remember to load Fail-Safe Defaults (Or Load BIOS Defaults) after flashing BIOS. However, if the system instability still remains, please clear CMOS to solve the problem.

Question 7: Why do I still get a weak sound after turning up the speaker to the maximum volume?
Answer: Please make sure the speaker you are using is equipped with an internal amplifier. If not, please change another speaker with power/amplifier and try again later.

Question 8: How do I disable onboard VGA card in order to add an external VGA card?
Answer: Gigabyte motherboards will auto-detect the external VGA card after it is plugged in, so you don't need to change any setting manually to disable the onboard VGA.

Question 9: Why cannot I use the IDE 2?
Answer: Please refer to the user manual and check whether you have connected any cable that is not provided with the motherboard package to the USB Over Current pin in the Front USB Panel. If the cable is your own cable, please remove it from this pin and do not connect any of your own cables to it.

Question 10: Sometimes I hear different continuous beeps from computer after system boots up. What do these beeps usually stand for?
Answer: The beep codes below may help you identify the possible computer problems. However, they are only for reference purposes. The situations might differ from case to case.

→AMI BIOS Beep Codes
*Computer gives 1 short beep when system boots successfully.
*Except for beep code 8, these codes are always fatal.

1 beep Refresh failure
2 beeps Parity error
3 beeps Base 64K memory failure
4 beeps Timer not operational
5 beeps Processor error
6 beeps 8042 - gate A20 failure
7 beeps Processor exception interrupt error
8 beeps Display memory read/write failure
9 beeps ROM checksum error
10 beeps CMOS shutdown register read/write error
11 beeps Cache memory bad

→ AWARD BIOS Beep Codes

1 short: System boots successfully
2 short: CMOS setting error
1 long 1 short: DRAM or M/B error
1 long 2 short: Monitor or display card error
1 long 3 short: Keyboard error
1 long 9 short: BIOS ROM error
Continuous long beeps: DRAM error
Continuous short beeps: Power error

Question 11:For the M/B which have RAID function, how to set in the BIOS in order to bootup from IDE3, 4 by either RAID or ATA mode?
Answer:Please set in the BIOS as follow:

1. Advanced BIOS features-->(SATA)/RAID/SCSI boot order: "SATA"
2. Advanced BIOS features--> First boot device: "SCSI"
3. Integrated Peripherals--> Onboard H/W ATA/RAID: "enable"

Then it depends on the RAID mode that you need to set "RAID" to RAID mode or "ATA" to normal ATA mode in the item named RAID controller function.

Question 12:How to set in the BIOS to bootup from the IDE/ SCSI/ RAID card ?
Answer:Please set in the BIOS as follow:

1. Advanced BIOS features-->(SATA)/RAID/SCSI boot order: "SCSI"
2. Advanced BIOS features--> First boot device: "SCSI"

Then it depends on the mode(RAID or ATA) that you need to set in RAID/ SCSI BIOS.



Contact Us

- **Taiwan (Headquarters)**

GIGA-BYTE TECHNOLOGY CO., LTD.
Address: No.6, Bau Chiang Road, Hsin-Tien, Taipei Hsien, Taiwan.
TEL: +886 (2) 8912-4888
FAX: +886 (2) 8912-4003
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address (English): http://www.gigabyte.com.tw
WEB address (Chinese): http://chinese.giga-byte.com

- **U.S.A.**

G.B.T. INC.
Address: 17358 Railroad St, City of Industry, CA 91748.
TEL: +1 (626) 854-9338
FAX: +1 (626) 854-9339
Tech. Support :
http://www.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://www.giga-byte.com

- **Germany**

G.B.T. TECHNOLOGY TRADING GMBH
Address: Friedrich-Ebert-Damm 112 22047 Hamburg Deutschland
TEL: +49-40-2533040 (Sales)
+49-1803-428468 (Tech.)
FAX: +49-40-25492343 (Sales)
+49-1803-428329 (Tech.)
Tech. Support :
http://de.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://www.gigabyte.de

- **Japan**

NIPPON GIGA-BYTE CORPORATION
WEB address : http://www.gigabyte.co.jp

- **Singapore**

GIGA-BYTE SINGAPORE PTE. LTD.
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp

- **U.K.**

G.B.T. TECH. CO., LTD.
Address: GUnit 13 Avant Business Centre 3 Third Avenue, Denbigh West Bletchley Milton Keynes, MK1 1DR, UK, England
TEL: +44-1908-362700
FAX: +44-1908-362709
Tech. Support :
http://uk.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://uk.giga-byte.com

- **The Netherlands**

GIGA-BYTE TECHNOLOGY B.V.
TEL: +31 40 290 2088
NL Tech.Support: 0900-GIGABYTE (0900-44422983)
BE Tech.Support: 0900-84034
FAX: +31 40 290 2089
Tech. Support :
http://nz.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://www.giga-byte.nl

- **China**

NINGBO G.B.T. TECH. TRADING CO., LTD.
Tech. Support :
http://cn.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://www.gigabyte.com.cn

Shanghai
TEL: +86-021-63410999
FAX: +86-021-63410100

Beijing
TEL: +86-010-82886651
FAX: +86-010-82888013

Wuhan
TEL: +86-027-87851061
FAX: +86-027-87851330

GuangZhou
TEL: +86-020-87586074
FAX: +86-020-85517843

Chengdu
TEL: +86-028-85236930
FAX: +86-028-85256822

Xian
TEL: +86-029-85531943
FAX: +86-029-85539821

Shenyang
TEL: +86-024-23960918
FAX: +86-024-23960918-809

- **Australia**

GIGABYTE TECHNOLOGY PTY. LTD.
Tech. Support :
http://www.giga-byte.com.au/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://www.giga-byte.com.au

- **France**

GIGABYTE TECHNOLOGY FRANCES S.A.R.L.
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://www.gigabyte.fr

- **Russia**

Moscow Representative Office Of Giga-Byte Technology Co., Ltd.
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://www.gigabyte.ru

- **Poland**

Representative Office Of Giga-Byte Technology Co., Ltd. POLAND
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://www.gigabyte.pl